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AN INQUIRY INTO THE HOUSEHOLD ECONOMY

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ABSTRACT

Most empirical studies in economics focus on the trading of goods and services, and hence neglect to consider the value of goods and services produced by individuals for themselves and their families. This paper presents an empirical examination of this "household economy".

The principle result of the study is a comparison of the value of the time which people devote to each activity of their lives with the money they spend on the activity. After-tax wage rates are used to value an individual's time.

The enormous size of the household economy, and the fact that for most activities the value of the consumer's time devoted to an activity exceeds the money expenditures on the activity, suggest that there are many opportunities for productivity improvements in the household economy which have been overlooked in most traditional thinking on productivity.

1. INTRODUCTION

Production by consumers has been largely overlooked by economists, yet there is little doubt of its importance. All products and services are purchased by consumers in an unfinished state. The consumer must then do further processing to produce the good or service desired. Lancaster¹ and Becker² have constructed theoretical outlines of this process, yet empirical work has been lacking.

Each household may be viewed as a little corporation, purchasing a variety of inputs and producing a variety of goods and services for its members. These little corporations may be thought of in the aggregate as 'the household economy.' Many outputs of the household economy, for example food preparation or clothes cleaning, differ little from the outputs of some conventional corporations. Yet the economy, as it has been traditionally defined, usually includes only those goods or services produced in return for money payment. It will be referred to here as "the market economy" to emphasize this dichotomy.

¹Kelvin J. Lancaster, 'A New Approach to Consumer Theory', Journal of Political Economy, Vol.74 (April, 1966), pp. 132-157.

²Gary S. Becker, 'A Theory of the Allocation of Time', The Economic Journal, September, 1965, p. 493.

The arbitrariness of the distinction between the two economies is painfully evident. If I pay you to clean my house, and you pay me to clean your house, then both transactions are in the market economy. If we each clean our own houses, or even clean each other's house as a favor, then the activities must be regarded as part of the household economy, as they certainly are not part of the market economy. The constant shifting of activities across the boundary between the two economies may result in misleading inferences. For example, if increasing numbers of women take jobs in the market economy and spend part of their income purchasing services, such as day care, which they used to produce for themselves in the household economy, then the usual measures of the economy, such as Gross National Product (GNP), will indicate a larger increase in production than has actually been the case.

However, this problem of activities shifting across the boundary between the two economies is only one symptom of the fact that a major portion of the economy is simply left out of most conventional economic analysis. This neglect of the household economy is reflected in government policies. In particular, the household economy is neglected in most present thinking on productivity. While much discussion, and some action, is devoted to improving productivity in the market economy, little attention is given to improving prod-

activity in the household economy. Yet it may be argued that improving the productivity of any activity in the household economy would have the same effects on welfare as improving the productivity of an industry of similar size in the market economy.

There are two reasons why the household economy has tended to be neglected by economists. The first has been a definitional problem. Although it is arbitrary, defining the economy to include only those goods or services produced in return for a money payment does create a sharp distinction between activities which are and are not part of the economy. Most alternative definitions require many judgemental distinctions before they can be applied in practice. The only solution would seem to be to regard every activity in which people engage as part of the economy. One may view every activity in which people engage as a service, even if only to the person who produces it.

The second problem is one of data. Data on money transactions are widely collected and distributed. Data on other types of activities are not so readily available. This study is an attempt to pull together available data on the various activities in the household economy, and express this data in money terms. It will be shown that many of the activities in the household economy are 'industries' of

enormous proportions. For most activities, the value of the time which people devote to the activity exceeds the money the people spend on the activity. Hence, the opportunities for productivity improvement in the household economy are great. Using this data, one may identify specific opportunities which merit further study.

2. THE THEORY

Unfortunately, since household outputs are not sold, it is difficult to place a monetary value on them, so as to compare their value with those of outputs in the market economy. There is, however, one household output which is sold in the market economy--labor. According to economic theory, rational producers will allocate their scarce resources in such a way that the value of the marginal product of the resource is equal in each use. Applying this logic to the allocation of time in the household, it may be argued that time contributed by members of the household should be valued at the wage rate of each individual. Since personal time is really the only scarce resource contributed by the household, it seems reasonable to assume that the value added by the household in producing each good or service is equal to the value of time spent producing the good or service. The total value of each good or service produced by the household is equal to the value of time plus the value

of any inputs purchased in the market economy ('market expenditures') which were used in the activity.

There are at least two objections which may be made to this procedure. The first is that the time which is sold as labor may also produce a service (or disservice) to the individual involved, since people may derive pleasure (or displeasure) from their own labor. The wage rate will not reflect the value of this additional service (or disservice), and hence not be an accurate representation of the true value of peoples' time. Second, people may not be free to adjust their work hours so as to equate the value of the marginal product of time off the job to the wage rate. Unfortunately, there is, as yet, no way to correct for these problems in an empirical study.

Another troublesome problem with valueing peoples' time at the wage rate is that it works only for people who have wages. Perhaps the most notable class of people who would be left out under this scheme are housekeepers. Housekeepers are the professionals of the household economy, and should not be overlooked. As will be discussed below, data are available on time allocations by housewives, who comprise the overwhelming majority of housekeepers. It will be assumed that housewives have an opportunity cost of time (i.e. the wage rate they could make if they were employed in

the market economy) equal to the after-tax wage rate of the average female year-round full-time employee. People who will have to be left out of this analysis due to lack of both time allocation data and the difficulty in estimating wage rates include children, retired people, and the unemployed.

Two major types of data were required by this project. The first type were data on individual time allocations. This data was taken from a 1965 study done by the Survey Research Center at the University of Michigan. For that study, about 2000 non-farm urban-dwellers between the ages of 18 and 65 kept diaries of how they spent a single day. Times reported were coded into one of 96 activity categories. Complete tables were then compiled of time allocations, in average number of minutes per day, for employed men, employed women, and housewives. Tables with less detailed 37 activity categories were also published for specific socio-economic groups, including six household income levels.

The second type of data were on market expenditures. These were taken from the U.S. Bureau of Labor Statistics' Consumer Expenditure Survey, which gives data on consumer expenditures broken down into several hundred categories. The survey was conducted in 1961-62 and again in 1972-73.

This study will use data from the 1972-73 survey, which although a bit more separated in time from the 1965 time allocation data, is more complete and up to date than the 1961-62 survey.

Reconciling the data on time allocations with the data on consumer expenditures poses several problems. First, it is necessary to reconcile the classifications of time allocations with the classifications of market expenditures. Every effort was made to develop as detailed a classification of household activities as the data would allow. A 38 activity classification was ultimately developed. The first 17 activities are what will be called "tradable" activities, since they are direct competitors with services which may be purchased in the market economy. The last 20 activities are called "non-tradable", since the services which result may be consumed only by the person who produces them. Appendix A describes the activity classification and the assumptions behind it in more detail.

The second data reconciliation problem was to find a way to compare data on individual allocations of time with household market expenditures. The solution is to work at the aggregate level. Thus, the sum total value of time devoted to a particular activity by all individuals may be compared to the sum total market expenditures by all households.

Breaking out the data by household income levels is difficult, as the necessary data on individual wage rates by household income class have not been published. These wage rates may be estimated, however. Appendix B explains the methodology which was used to accomplish this.

Calculation of aggregate market expenditures for each activity by income class began by multiplying per household expenditures on each activity for the income class by the number of households in the income class. This did not end the process, however, since there were also some households who did not report their income. Aggregate market expenditures by these families could, however, be calculated by multiplying their expenditures on each activity by the number of households not reporting their income. This amount was then distributed among income classes in proportion to expenditures by families reporting their income in each income class.

3. THE RESULTS

The empirical results of this study are shown in Appendix C. The first three columns for each income class show the average number of minutes per day devoted to each activity, while the fourth column shows the average market expenditures per household per year. Columns five through seven

give the aggregate value of time devoted to the activity by all employed men, employed women, and housewives in the income class, respectively. These figures were obtained by multiplying columns one through three by the corresponding population and wage rate. Column eight is simply the sum of columns five through seven. Column nine gives aggregate market expenditures by all households in the income class on the activity. Column 10 gives aggregate annual person-hours devoted to each activity, obtained by multiplying the figures in columns one through three by the corresponding population size, summing, and making necessary unit changes.

Continuing to the second page for each income class, column one gives the sum of columns eight and nine on the previous page--the total expenditures of time and money on each activity. Column two ranks the activities by total expenditures. Column three gives the market expenditures per person-hour spent on each activity. Hence, it represents the entries in column nine divided by the corresponding entries in column 10 on the previous page. Column four ranks the market expenditures per person-hour. Column five gives the ratio of value of time to total market expenditures. Hence, it represents the entries in column eight divided by the corresponding entries in column nine on the previous page. Column six ranks these ratios.

The third page for each income class shows the assumed population sizes and wage rates for the income class. The total number of employed males and females are based on 1973 averages as reported by the Bureau of Labor Statistics.³ These populations were distributed among income classes in proportion to the aggregate number of person-hours worked, as estimated and Appendix B and shown in Table 9. The total number of housewives is based on the average number of women in 1973 not in the labor force due to the fact that they were "keeping house," as reported by the U.S. Bureau of Labor Statistics.⁴ This total was distributed among income classes in proportion to the number of households in each income class, as shown in the Consumer Expenditure Survey. The total number of households is from the Consumer Expenditure Survey, with households not reporting their income being distributed among income classes in proportion to the number of households reporting an income in the class. Wage rates are as estimated in Appendix B.

³U.S. Bureau of Labor Statistics, Employment and Earnings, U.S. Government Printing Office, January, 1974, p. 145.

⁴Ibid, p. 141.

4. CONCLUSIONS

The household economy far exceeds the market economy in size. If one were to redefine personal consumption expenditures (PCE) to include the value of time expended in the household, the 1973 Gross National Product (GNP) would have been around \$4700 billion, rather than \$1307 billion.⁵ Many of the "industries" of the household economy are gigantic compared to most conventional industries. The value of time and money which are devoted to watching television, for example, far exceeds the market expenditures on either housing or food.

In virtually every activity, the value of time which people devote to the activity exceeds the value of market expenditures on the activity. This suggests a substantial willingness of people to pay for innovations which would reduce the time spent on activities which are displeasurable or neutral. Although this statement may not sound very original, this willingness to pay for time savings may be

⁵This number was obtained by adding my total expense for all families (value of time and market expenditures) of \$4197 billion to the 1973 total of \$497 billion for gross private domestic investment, net exports, and government purchases. The number is approximate, since my definition of market expenditures does not exactly match the standard definition of PCE.

Source: U.S. Bureau of the Census, Statistical Abstract of the United States - 1978, p. 440.

much greater than is commonly perceived. For example, most of us are accustomed to thinking of eating out as an "expensive" activity. Yet, the data in Appendix C indicate that the value of a restaurant customer's time is an average of 1.9 times more valuable than the cost of the meal purchased. The success of the fast-food restaurant industry in recent years may be attributable more to the time savings these establishments offer than to their low prices. If this hypothesis is correct, there is every reason to expect that many people would prefer higher quality food than most fast-food restaurants offer, and be willing to pay for it, if only they could get it quickly. Hence, there is probably a substantial untapped market for high-quality fast-food restaurants.

In general, one might assume that the higher the ratio of time value to market expenditures, the more willing people would be to make a given percentage increase in their expenditures so as to obtain a given percentage decrease in time spent on an activity. House cleaning, with its 19.3 ratio, and personal care at home with a 25.7 ratio would seem ripe for innovation. So would education (2.3 ratio), reading (28.3), and hobbies and crafts (18.8). Although it would require a substantial technological breakthrough, any innovation which could safely and comfortably enable people to reduce the time they spend sleeping would have an enor-

mous impact. People currently spend time with a value roughly equal to the GNP sleeping.

For a few activities, especially medical care and housing, the very low ratios of time value to market expenditure suggest that innovations which allow people to reduce market expenditures by devoting a bit more of their own time to the activity would have an impact. Do-it-yourself solar water heating systems might be one example of such an innovation. Various types of medical monitoring equipment for use in the home might be another.

Interestingly, the ratio of time value to market expenditures are remarkably stable across income classes. There are distinctly higher ratios for food and clothing in lower income classes, indicating a "do-it-yourself" tendency among lower income households. However, the opposite would appear to be true of housing. Perhaps this is because lower income households generally have more modest housing, requiring less care and maintenance than higher income households. As might be expected, market expenditures per hour devoted to an activity rise with income for all activities. In general, one might infer that all income classes would be receptive to innovations which improve household productivity.

There is a need for regular monitoring of the household economy through some indicators similar to those presently used to monitor the market economy. These indicators would not necessarily require the type of detailed time allocation data used in this study, although they could be improved if this type of data were available on a regular basis. Useful indicators of total household production could be developed from existing data on wage rates, employment, and the size of various socio-economic groups. These indicators would remind everyone of what has been demonstrated in this paper--that what most economic planners think of as 'the economy' is merely the tip of the economic iceberg. Hidden underneath are great opportunities for a better life.

Appendix A

DEVELOPING AN ACTIVITY CLASSIFICATION

Every effort was made to develop, as detailed a classification of household activities as the data would allow. A 38-activity classification was ultimately developed. These are listed in Table 1, along with the time allocation study⁶ activity classifications assigned to each one.

The 1972-73 Consumer Expenditure Survey, from which data on market expenditures were obtained, had two components. In the first, a sample of about 20,000 households⁷ were asked to keep diaries of all their expenditures over a two week period. In the second, about 20,000 households were asked once each quarter for a year to report expenditures for "big ticket" items. The results of both survey compo-

⁶John P. Robinson, How Americans Use Time: A Social-Psychological Analysis of Everyday Behavior, Praeger Publishers, New York, 1977;

and

John P. Robinson, How Americans Used Time in 1965, Institute for Social Research, University of Michigan, Ann Arbor, 1977. Available from University Microfilms, Ann Arbor, MI.

⁷A household is a group of persons, usually living together, who pool income and expenses, or a financially independent person.

TABLE 1

Assignment of Time Allocation Study Activities to Household
Economy Study Activities

Household Economy Study Activity	Time Allocation Study Activity
Tradable Activities-	
1. Job	00 Normal Occupational Work Outside Home
	01 Normal Occupational Work at Home
	02 Overtime
	03 Travel During Work
	04 Waiting Time or Inter- ruption During Work
	05 Second Job
	07 At Work, Other
	08 Work Breaks
2. Travel to Job	09 Travel to Job
3. Food Preparation	10 Food Preparation
	11 Meal Cleanup
	30 Shopping for Everyday Goods (57%)
	36 Waiting for Purchase of Goods and Services
	39 Travel Associated with Shopping (25%)
	49 Travel Associated with Personal Needs (25%)
4. Cleaning	12 Cleaning House
	13 Outdoor Chores
	30 Shopping for Everyday Goods (3%)
	39 Travel Associated With Shopping (2%)
	49 Travel Associated With Personal Needs (2%)
5. Gardening and Lawn Care	17 Gardening, Animal

	Care (60%)
	30 Shopping for Everyday Goods (1%)
	39 Travel Associated With Shopping (1%)
	49 Travel Associated With Personal Needs (1%)
6. Pet Care	
	17 Gardening, Animal Care (40%)
	30 Shopping for Everyday Goods (1%)
	39 Travel Associated with Shopping (1%)
	49 Travel Associated with Personal Needs (1%)
7. Clothing and Linens	
	14 Laundry, Ironing
	15 Clothes Upkeep
	30 Shopping for Everyday Goods (13%)
	35 Repair and Cleaning Services (60%)
	39 Travel Associated with Shopping (14%)
	49 Travel Associated with Personal Needs (14%)
8. House	
	16 Other Home Repairs
	18 Upkeep of Heat and Water Supplies
	31 Shopping for Durable Goods (90%)
	39 Travel Associated with Shopping (20%)
	49 Travel Associated with Personal Needs (20%)
9. Medical Care Given at Home	
	41 Personal Medical Care at Home (50%)
	30 Shopping for Everyday Goods (1%)
	39 Travel Associated with Shopping (1%)
	49 Travel Associated with Personal Needs (1%)
10. Child Care	
	20 Baby Care
	21 Child Care
	22 Helping Child with Homework
	27 Care of Other People's Children
11. Financial Management	
	19 Household Paperwork

	34 Government Services
	37 Other Professional Services
	39 Travel Associated with Shopping (20%)
	49 Travel Associated with Personal Needs (20%)
12. Travel Associated with Professional Medical Care	39 Travel Associated with Shopping (2%)
	49 Travel Associated with Personal Needs (2%)
13. Travel Associated with Education	59 Travel Associated with Education
14. Travel Associated with Organizations and Religion	69 Travel Associated with Organizations and Religion
15. Travel Associated with Social Life and Entertainment	79 Travel Associated with Social Life and Entertainment
16. Travel Associated with Leisure Activities	89 Travel Associated with Leisure Activities
17. Shopping Associated with Non-Tradable Activities	10 Shopping for Everyday Goods (25%)
	31 Shopping for Durable Goods (10%)
	35 Repair and Cleaning Services (40%)
	39 Travel Associated with Shopping (14%)
	49 Travel Associated with Personal Needs (14%)
Non-Tradable Activities-	
18. Personal Care at Home	40 Personal Hygiene
	48 Other Private Activity
19. Personal Care Services	32 Personal Care Outside Home
20. Medical Care Received at Home	41 Personal Medical Care at Home (50%)
21. Professional Medical Care	33 Medical Care Outside Home
22. Eating at Home	43 Eating at Home

23. Eating Out	44 Meals Outside Home or Workplace
	06 Meals at Work
24. Sleep and Rest	44 Essential Sleep
	46 Incidental Sleep
	47 Resting, Routine Naps
	98 Relaxing
25. Vacation	See Text
26. Education	50 Attending Classes as Full- Time Student
	51 Attending Classes as Part- Time Student
	52 Attending Lectures or Special Talks
	53 Political Programs or Union Training Class
	54 Homework or Research
	55 Reading Technical Journals or Books
	56 Other Education
27. Religion	64. Participating in Religious Organizations
	65 Religious Services
28. Other Organizations	60 Participating as Member of Social or Political Organization or Labor Union
	61 Voluntary Activities as Elected Official of a Social or Political Organization or Labor Union
	62 Participating in Meetings of Organizations
	63 Unpaid Work for a Civic Purpose
	64 Participating in Factory Council
	67 Participating in Other Organizations
	68 Other Organizational Activity
29. Television	91 Television
30. Reading	93 Reading Books
	94 Reading Magazines
	95 Reading Newspapers
	99 Reading, Not Specified

31. Social Life	24 Indoor Play with Children
	42 Care and Help Given to Other Adults
	75 Entertaining or Visiting Friends
	76 Parties or Receptions
	77 Going to Bars, Tearooms, Soda Fountains, etc.
	78 Other Social Life
	87 Parlor Games
32. Conversation	23 Read or Talk with Children
	96 Talking with Adults
33. Outdoors	25 Walking or Playing Outdoors with Children
	80 Playing Sports or Physical Exercises
	81 Hunting, Fishing, Camping, Pleasure Drives, Sightseeing
	82 Talking a Walk or Hike
34. Entertainment	70 Attending Sports Events
	71 Circuses, Fairs, Nightclubs, Dancing Parades
	72 Attending Movies
	73 Attending Theater, Concerts or Opera
	74 Attending Museums, Exhibitions, or Galleries
35. Listening to Sounds	19 Listening to Records or Tape Recording
	22. Listening to Radio
36. Performing	86 Playing a Musical Instrument, Singing, Artistic Dancing
37. Hobbies and Crafts	83 Hobbies and Collections
	84 Women's Home Crafts
	85 Artistic Hobbies
	88 Other Leisure
38. Personal Letters	97 Writing Private Correspondence

nents have been compiled as an integrated set of tables.⁸ However, a greater level of commodity detail is provided in the separate publications on each segment of the survey.⁹ Both surveys were done over a two-year period, with no adjustments made for price changes over that time. Hence, the expenditures shown may be viewed as averages of expenditures over this period. The diary survey began six-months later than the interview survey, with price level adjustments being made to ensure that the integrated diary and interview survey data reflected calendar years 1972-73. Data are presented according to various socio-economic breakdowns, including 12 household income levels and seven occupational groups.

Table 2 shows the consumer expenditure classes assigned to each household activity. Whenever possible, the classes come from among those used in the integrated diary and interview survey data. In some cases, these classes did not provide sufficient detail for this study. The separate diary and interview survey publications provided a more de-

⁸U.S. Bureau of Labor Statistics, Consumer Expenditure Survey: Integrated Diary and Interview Survey Data, 1972-73, Bulletin 1992, U.S. Government Printing Office, Washington, DC, 1978.

⁹U.S. Bureau of Labor Statistics, Consumer Expenditure Survey: Diary Survey, July 1972-June 1974, Bulletin 1959, U.S. Government Printing Office, Washington, DC, 1977;

and

U.S. Bureau of Labor Statistics, Consumer Expenditure Survey: Interview Survey, 1972-73, Bulletin 1997, U.S. Government Printing Office, Washington, DC, 1978.

tailed breakdown of many of these classes, which were used where necessary. Where data was taken from one of the separate survey publications, this is indicated by a footnote in Table 2.

With three exceptions, expenditures reported from the broad classes shown in the integrated diary and interview survey publication equaled the sum of the corresponding more detailed expenditure classes in the interview survey publication, where the data from the interview survey was used in this study. Thus, this detailed expenditure data from the interview survey publication was directly comparable to the expenditure data reported in the integrated publication, and could be used without modification. In three exceptional cases small adjustments were made, as explained in the footnotes to Table 2, to insure comparability of this data.

Expenditure data for the classes in the integrated publication never exactly equal the sum of the expenditures shown for the corresponding more detailed classes in the diary survey publication, due to price level adjustments made to this data in the integration process by the Bureau of Labor Statistics. These adjustments were made due to the fact that the diary survey actually began six months after the interview survey, as explained above. Where diary survey data were used, expenditures shown in the diary survey were

TABLE 2

**Assignment of Consumer Expenditure Classes to Household
Economy Study Activities**

Household Economy Study Activity	Consumer Expenditure Survey Class
Tradable Activities-	
1. Job	
2. Travel to Job	Transportation (35.4%)
3. Food Preparation	Food at Home (98%) Refrigerators and Freezers (1) Cooking Ranges (1) Dishwashers and Garbage Disposals (1) Toasters, Coffeemakers, Blenders (1) Range Hoods and Electric Kitchen Equipment (1) Domestic Services- Domestic and Other Duties (50%) (2) Housewares Miscellaneous House- hold Products (50%)(3) Service Contracts on Appliances (50%)(4) Transportation (8.7%)
4. Cleaning	Cleaning Supplies (3) Vaccuums and Other Electric Floor Equipment (1) Domestic Services- Domestic and Other Duties (50%)(2) Transportation (.5%)
5. Gardening and Lawn Care	Gardening and Lawn Care Services (2) Fertilizers and Pesticides (2) Lawn and Garden Supplies (3) Lawnmowers (4) Transportation (.3%)
6. Pets and Animals	Pet Purchases, Supplies, and Other (1) Pets, Toys, and Games (10%) Food at Home (2%)

7. Clothing and Linens

Transportation (.3%)

Laundry Supplies (3)
Clothing Purchases
Dry Cleaning and Laundry
Washing Machines (1)
Clothes Dryers (1)
Sewing Machines (1)
Household Textiles
Paper Towels, Napkins
and Tissues (66%)(3)
Service Contracts on
Appliances (50%)(4)
Transportation (6%)

8. House

Shelter
Other Household Repairs (2)
Reupholstering and
Furniture Repair (2)
Appliance Repair and
Servicing (2)
Moving, Freight, and
Storage Charges (2)
Fuel and Utilities
Furniture
Floor Coverings
Heaters, Fans, Humid-
ifiers, Vaporizers (1)
Miscellaneous Items (2)
Dehumidifiers, Air
Conditioners (1)
Miscellaneous Household
Products (50%)(3)
Lamps, Chandeliers, and
Other Fixtures (4)
Window Shades, Blinds,
and Rods (4)
Clocks, Mirrors and
Decorative Items (4)
Hand and Power Tools (4)
Insurance on Personal
Effects (4)
Other Household Expenses (1)
Transportation (2.5%)

9. Medical Care Given
at Home

Nonprescription Drugs and
Medical Supplies
Domestic Services-
Child Care and Care
for Elderly (50%)(2)
Transportation (5.4%)

10. Child Care

Toys (1) .
Pets, Toys and Games (45%)

TABLE 6

Number of Full-Time Year-Round Earners Among Unrelated Individuals

Household Income Class	Number of Unrelated Indiv- iduals(1) (000)	Full-Time Year-Round Earners Per Unrelated Indiv- idual(2)	Unrelated Individual Full-Time Year-Round Earners (000)
<\$1000	1387.76	.082	113.80
\$1,000-1,499	1168.64	.040	46.75
\$1,500-1,999	1442.54	.024	34.62
\$2,000-2,499	1679.92	.029	48.72
\$2,500-2,999	1278.20	.030	38.35
\$3,000-3,499	1095.60	.059	64.64
\$3,500-3,999	858.22	.105	90.11
\$4,000-4,999	1698.18	.192	326.05
\$5,000-5,999	1296.46	.300	388.94
\$6,000-6,999	1040.82	.435	452.76
\$7,000-7,999	931.26	.498	463.77
\$8,000-8,999	858.22	.574	492.62
\$9,000-9,999	675.62	.626	422.94
\$10,000-11,999	1004.30	.706	709.04
\$12,000-14,999	913.00	.749	683.84
\$15,000-24,999	766.92	.792	607.40
\$25,000-49,999	127.82	.812	103.79
>50,000	54.78	.711	38.95

(1) Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 97, U.S. Government Printing Office, Washington, DC, 1975, p. 47.

(2) Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 105, U.S. Government Printing Office, Washington, DC, 1977, p. 155

each range (see Table 7). The total number of person-hours worked may be obtained by assuming each full-time earner works 40 hours a week 52 weeks a year, while each part-time earner works 20 hours a week 52 weeks a year.

TABLE 7

Aggregate Person-Hours Worked

Household Income Class	Total Full-Time Year Round Earners (000)	Total Estimated Full-Time Earners (000)	Total Estimated Part-Time Earners (000)	Total Annual Person Hours Worked(2) (Millions)
<\$1,000	247.0	354.4	72.6	812.6
\$1,000-1,499	131.5	188.7	38.7	433.2
\$1,500-1,999	167.9	240.9	49.4	552.4
\$2,000-2,499	133.5	191.5	39.3	439.2
\$2,500-2,999	141.3	202.7	41.6	464.9
\$3,000-3,499	174.8	250.8	51.4	575.1
\$3,500-3,999	205.7	295.1	60.5	676.7
\$4,000-4,999	747.2	1072.1	219.7	2458.5
\$5,000-5,999	1047.4	1502.8	308.0	3446.1
\$6,000-6,999	1351.2	1938.6	397.3	4445.5
\$7,000-7,999	1704.7	2445.8	501.3	5608.6
\$8,000-8,999	1980.7	2841.8	582.5	6516.7
\$9,000-9,999	2149.4	3083.9	632.1	7071.9
\$10,000-11,999	5127.0	7356.0	1507.7	16,868.5
\$12,000-14,999	8179.9	11,736.2	2405.5	26,913.0
\$15,000-24,999	17,837.3	25,592.2	5245.4	58,687.0
\$25,000-49,999	6820.8	9786.2	2005.8	22,441.3
>50,000	677.6	972.2	199.3	2229.4

(1) Source: Total number of full-time and part-time employed persons from U.S. Bureau of Labor Statistics, Employment and Earnings, U.S. Government Printing Office, Washington, DC, January, 1974, p. 145. Figures based on annual averages for 1973.

(2) See text.

This procedure probably tends to understate the number of employees in the lower income ranges, where people probably work on a more intermitent basis, but it seems to be about the best which can be done with available data. 1973 Census data will be used throughout to ensure comparability with

the Consumer Expenditure Survey, except for the number of full-time year-round earners per family by income class, which will be for 1975, the first year it was published.

Before proceeding to divide aggregate earnings by hours worked, it is necessary to reconcile the income classes used in the various data sources. Since the income classes given for the time allocation study are for the year 1965, they must be adjusted for inflation to make them comparable to the remaining data, which is for the year 1973. One 1965 dollar had the purchasing power of 1.4 1973 dollars, according to the consumer price index. Table 8 shows the household economy study income classes used here, and the corresponding income classes in the data sources. It was necessary to split the Census Bureau's \$15,000-25,000 income class between the \$12,000-19,999 and >\$20,000 classes used here. This was done by dividing the earnings in the \$15,000-\$25,000 income class between the two classes in proportion to the number of households in the two classes, as reported in the Consumer Expenditure Survey.

Table 9 shows the average after-tax wage rates which result from dividing aggregate earnings by aggregate person-hours worked. There are, however, significant differences in earnings between the sexes. The average full-time year-round male earner earned 1.158 times as much as the average

TABLE 8

Correspondence of Income Classes

Household Economy Study Income Class (1973 \$)	Time Allocation Study Income Class (1965 \$)	Census Bureau Income Class (1973 \$)	Consumer Expenditure Study Income Class (1973 \$)
<\$5,000	<\$4,000	<\$1,000	<\$3,000
		\$1,000-1,499	\$3,000-3,999
		\$1,500-1,999	\$4,000-4,999
		\$2,000-2,499	
		\$2,500-2,999	
		\$3,000-3,499	
		\$3,500-3,999	
		\$4,000-4,999	
\$5,000-7,999	\$4,000-5,999	\$5,000-5,999	\$5,000-5,999
		\$6,000-6,999	\$6,000-6,999
		\$7,000-7,999	\$7,000-7,999
\$8,000-9,999	\$6,000-7,499	\$8,000-8,999	\$8,000-9,999
		\$9,000-9,999	
\$10,000-11,999	\$7,500-9,999	\$10,000-11,999	\$10,000-11,999
\$12,000-19,999	\$10,000-14,999	\$12,000-14,999	\$12,000-14,999
		\$15,000-25,000*	\$15,000-19,999
>\$20,000	>15,000	\$15,000-25,000*	\$20,000-24,999
		>25,000	\$25,000-49,999
			>\$50,000

*Number of earners in \$15,000-25,000 income class allocated between \$12,000-19,999 and >\$20,000 household economy study income classes in proportion to the number of families in each class, as reported in the Consumer Expenditure Survey.

full-time year-round earner, while the average full-time year-round female earner earned only .637 times as much as the average full-time year-round earner.¹⁴ It will be assumed that these same ratios apply to all types of earners at all income levels.

TABLE 9

Average Wage Rates

Household Economy Study Income Class	Aggregate Earnings (Million \$)	Aggregate Person-Hours Worked (Millions)	Hourly Wage (After Tax \$)
<\$5,000	15,261.4	6412.6	2.38
\$5,000-7,999	39,922.2	13,500.2	2.96
\$8,000-9,999	43,396.3	13,588.6	3.19
\$10,000-11,999	54,401.4	16,868.5	3.23
\$12,000-19,999	228,404.4	65,959.5	3.46
>\$20,000	217,476.4	44,311.2	4.91
Total	598,862.1	160,640.5	3.73

The before-tax wage rate for housewives was assumed equal to the average earnings of a full-time year-round female earner in 1973 of \$6661 per year¹⁴ or \$3.20 per hour. The after-tax wage rate for housewives was calculated for each income class by multiplying this by one minus the tax rate for the income class. The tax rates are a weighted average of those shown in Table 4, where the weighting is by number of households.

¹⁴U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 97, U.S. Government Printing Office, Washington, DC, 1975, pp. 137-139.

¹⁵U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 97, "Money Income in 1973 of Families and Persons in the United States", U.S. Government Printing Office, 1975, p. 139.

APPENDIX C

VALUE OF TIME VS. MARKET EXPENDITURES
BY INCOME CLASSES

VALUE OF TIME VS. MARKET EXPENDITURES FOR THE UNDER \$5000 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES/DAY				1973 \$/HOUSE-				BILLION 1973 \$			
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE- WIVES	HOLD MARKET EXPEND- ITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE- WIVES VALUE OF TIME	TOTAL VALUE OF TIME	TOTAL MARKET EXPEND- ITURES	PERSON HOURS (MIL- LIONS)		
1 JOB	426.75	303.76	9.95	0.0	14.84	3.63	1.62	20.09	0.00	8292.8		
2 TRAVEL TO JOB	34.16	32.57	1.28	194.1	1.19	0.39	0.21	1.79	3.42	754.5		
3 FOOD PREPARATION	29.09	79.46	160.09	756.0	1.01	0.95	25.04	28.00	13.31	9473.8		
4 HOUSE CLEANING	7.01	38.88	72.49	28.1	0.24	0.46	11.79	12.50	0.49	4234.9		
5 GARDENING	1.49	1.24	2.35	24.7	0.05	0.01	0.38	0.45	0.43	152.8		
6 PET CARE	1.11	0.93	1.71	28.2	0.04	0.01	0.28	0.33	0.50	111.8		
7 CLOTHING AND LINENS	6.41	26.22	51.69	326.7	0.22	0.31	8.41	8.94	5.75	3025.8		
8 HOUSE	12.37	5.21	9.05	1150.9	0.43	0.06	1.47	1.56	20.27	676.3		
9 MEDICAL CARE GIVEN	0.58	0.56	0.79	44.9	0.02	0.01	0.13	0.16	0.79	53.5		
10 CHILD CARE	3.72	25.75	99.99	49.7	0.13	0.31	16.26	16.70	0.87	5547.4		
11 FINANCIAL MANAGEMENT	21.88	24.28	22.54	163.1	0.76	0.29	3.67	4.72	2.87	1660.8		
12 TRAVEL/PRO MEDICAL	0.51	0.39	0.48	11.0	0.02	0.00	0.08	0.10	0.19	35.1		
13 TRAVEL/EDUCATION	0.84	0.41	0.51	5.5	0.03	0.00	0.08	0.12	0.10	40.9		
14 TRAVEL/ORG & RELIGION	3.37	2.47	2.55	29.1	0.12	0.03	0.41	0.56	0.51	197.0		
15 TRAVEL/SOCAL LIFE	10.12	8.23	6.63	85.5	0.35	0.10	1.08	1.53	1.51	543.4		
16 TRAVEL/LEISURE	1.69	1.65	1.02	14.8	0.06	0.02	0.17	0.24	0.26	88.2		
17 SHOPPING/NON-TRADEABLE	7.23	6.69	8.33	47.2	0.25	0.08	1.35	1.69	0.83	585.0		
TOTAL--TRADEABLE	568.33	558.69	451.43	2959.3	19.76	6.68	73.43	99.87	52.11	35474.0		
18 PERSONAL CARE @HOME	52.14	75.18	49.28	36.7	1.81	0.90	8.02	10.73	0.65	3859.3		
19 PERSONAL CARE SERVICES	0.91	2.03	1.43	42.7	0.03	0.02	0.23	0.29	0.75	103.2		
20 MED CARE RECEIVE @HOME	0.23	0.25	0.36	0.0	0.01	0.00	0.06	0.07	0.00	23.8		
21 PRO MEDICAL CARE	0.91	1.02	1.43	247.3	0.03	0.01	0.23	0.28	4.35	95.2		
22 EATING AT HOME	58.77	43.71	48.94	0.0	2.04	0.52	7.96	10.53	0.00	3677.3		
23 EATING OUT	32.99	21.85	4.14	160.8	1.15	0.26	0.67	2.08	2.83	806.7		
24 SLEEP AND REST	467.04	468.18	536.31	0.0	16.24	5.60	87.24	109.08	0.00	37983.6		
25 VACATION	16.20	16.13	16.21	72.1	0.56	0.19	2.64	3.39	1.27	1189.8		
26 EDUCATION	19.63	12.03	0.00	15.0	0.68	0.14	0.00	0.83	0.26	342.0		
27 RELIGION	3.22	12.68	12.79	53.9	0.11	0.15	2.08	2.34	0.95	818.1		
28 OTHER ORGANIZATIONS	0.00	9.47	0.43	15.1	0.00	0.11	0.07	0.16	0.27	97.2		
29 TELEVISION	81.67	94.59	151.70	30.5	2.84	1.13	24.68	28.65	0.54	9810.9		
30 READING	25.86	22.30	15.97	19.1	0.90	0.27	2.60	3.76	0.34	1347.6		
31 SOCIAL LIFE	48.59	50.35	94.37	221.9	1.69	0.60	15.35	17.64	3.91	6008.7		
32 CONVERSATION	22.86	19.68	33.98	107.2	0.79	0.24	5.53	6.55	1.89	2243.2		
33 OUTDOORS	12.00	0.70	8.52	21.8	0.42	0.01	1.39	1.81	0.38	608.4		
34 ENTERTAINMENT	15.53	17.27	0.00	13.1	0.54	0.21	0.00	0.75	0.23	331.4		
35 LISTENING TO SOUNDS	11.04	4.78	4.47	26.3	0.39	0.06	0.73	1.17	0.46	413.4		
36 PERFORMING	0.22	0.28	0.56	3.2	0.01	0.00	0.09	0.10	0.06	34.5		
37 HOBBIES AND CRAFTS	1.20	5.52	4.89	8.4	0.04	0.07	0.80	0.90	0.15	317.7		
38 PERSONAL LETTERS	0.66	3.31	2.79	4.3	0.02	0.04	0.45	0.52	0.08	182.4		
TOTAL	1440.00	1440.00	1440.00	4058.7	50.07	17.22	234.24	301.53	71.47	105767.8		

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE UNDER \$5000 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	20.0889	6	0.0000	--	----	--
2 TRAVEL TO JOB	5.2041	14	4.5301	6	0.5225	30
3 FOOD PREPARATION	41.3153	2	1.4052	19	2.1034	16
4 HOUSE CLEANING	12.9937	9	0.1166	33	25.3034	2
5 GARDENING	0.8831	30	2.8445	10	1.0312	23
6 PET CARE	0.8243	31	4.4425	7	0.6596	28
7 CLOTHING AND LINENS	14.6975	8	1.9013	15	1.5543	20
8 HOUSE	22.2319	4	29.9685	2	0.0969	33
9 MEDICAL CARE GIVEN	0.9451	29	14.7583	3	0.1965	32
10 CHILD CARE	17.5764	7	0.1576	32	19.0985	3
11 FINANCIAL MANAGEMENT	7.5902	13	1.7299	16	1.6419	19
12 TRAVEL/FRO MEDICAL	0.2942	35	5.5035	5	0.5230	29
13 TRAVEL/EDUCATION	0.2137	36	2.3620	14	1.2135	21
14 TRAVEL/ORG & RELIGION	1.0731	25	2.5981	13	1.0970	22
15 TRAVEL/SOCAL LIFE	3.0343	20	2.7718	11	1.0147	24
16 TRAVEL/LEISURE	0.5049	33	2.9555	9	0.9365	25
17 SHOPPING/NON-TRADABLE	2.5164	21	1.4195	18	2.0305	17
TOTAL--TRADABLE	151.9869		1.4690		1.9165	
18 PERSONAL CARE PHONE	11.3747	10	0.1677	31	16.5773	4
19 PERSONAL CARE SERVICES	1.0412	27	7.2951	4	0.3832	31
20 MED CARE RECEIVE HOME	0.0691	38	0.0000	--	-----	--
21 PRO MEDICAL CARE	4.6306	17	45.7402	1	0.0635	34
22 EATING AT HOME	10.5270	11	0.0000	--	-----	--
23 EATING OUT	4.9121	15	3.5092	8	0.7352	26
24 SLEEP AND REST	109.0776	1	0.0000	--	-----	--
25 VACATION	4.6530	16	1.0576	22	2.6711	13
26 EDUCATION	1.0910	24	0.7736	24	3.1240	12
27 RELIGION	3.2828	19	1.1594	20	2.4717	15
28 OTHER ORGANIZATIONS	0.4484	34	2.7340	12	0.6882	27
29 TELEVISION	29.1837	3	0.9547	34	53.3922	1
30 READING	4.1008	18	0.2498	30	11.1827	5
31 SOCIAL LIFE	21.5510	5	0.6504	26	4.5147	9
32 CONVERSATION	8.4444	12	0.8413	23	3.4747	10
33 OUTDOORS	2.1951	22	0.6305	27	4.7247	8
34 ENTERTAINMENT	0.9766	28	0.6950	25	3.2402	11
35 LISTENING TO SOUNDS	1.6317	23	1.1223	21	2.5170	14
36 PERFORMING	0.1582	37	1.6315	17	1.3069	18
37 HOBBIES AND CRAFTS	1.0518	26	0.4669	28	6.0899	7
38 PERSONAL LETTERS	0.5934	32	0.4185	29	6.7714	6
TOTAL	373.0007		0.6758		4.2187	

ASSUMPTIONS ABOUT THE THE UNDER \$5000 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
EMPLOYED MEN	2.76	2.07
EMPLOYED WOMEN	1.52	1.29
HOUSEHOLDS	3.07	8.71

TOTAL NUMBER OF HOUSEHOLDS 17.61 MILLION

VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$5000-7999 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES/DAY				1973 \$/HOUSE-				BILLION 1973 \$			
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE- WIVES	HOLD MARKET EXPEND- ITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE- WIVES VALUE OF TIME	TOTAL VALUE OF TIME	TOTAL MARKET EXPEND- ITURES	PERSON HOURS (MIL- LIONS)		
1 JOB	365.94	294.95	3.12	0.0	33.35	9.25	0.29	42.88	0.00	14713.2		
2 TRAVEL TO JOB	32.70	23.63	0.53	383.2	2.98	0.74	0.05	3.77	4.02	1277.6		
3 FOOD PREPARATION	25.64	84.76	167.27	1108.4	2.34	2.66	15.53	20.52	11.63	7358.2		
4 HOUSE CLEANING	6.71	42.47	83.68	35.2	0.61	1.33	7.77	9.71	0.37	3524.8		
5 GARDENING	1.43	0.87	1.65	33.5	0.15	0.03	0.15	0.33	0.35	109.8		
6 PET CARE	1.19	0.70	1.21	48.6	0.11	0.02	0.11	0.24	0.51	81.3		
7 CLOTHING AND LINENS	7.31	33.50	65.63	586.0	0.67	1.05	6.09	7.81	6.15	2822.1		
8 HOUSE	13.30	7.65	10.54	1565.1	1.21	0.24	0.98	2.43	16.42	813.2		
9 MEDICAL CARE GIVEN	0.52	0.62	0.83	69.6	0.05	0.02	0.08	0.14	0.73	50.3		
10 CHILD CARE	10.24	21.27	60.70	99.1	0.93	0.67	5.63	7.23	1.04	2541.2		
11 FINANCIAL MANAGEMENT	19.38	42.53	39.11	420.1	1.77	1.33	3.63	6.73	4.41	2455.1		
12 TRAVEL/PRO MEDICAL	0.45	0.51	0.32	21.7	0.04	0.02	0.03	0.09	0.23	30.4		
13 TRAVEL/EDUCATION	0.61	0.45	0.70	10.8	0.05	0.01	0.06	0.14	0.11	45.9		
14 TRAVEL/ORG & RELIGION	2.46	2.72	3.50	57.4	0.22	0.09	0.32	0.63	0.60	220.9		
15 TRAVEL/SOCAL LIFE	7.37	9.05	9.10	168.9	0.67	0.28	0.84	1.80	1.77	633.5		
16 TRAVEL/LEISURE	1.23	1.81	1.40	29.2	0.11	0.06	0.13	0.30	0.31	106.9		
17 SHOPPING/NON-TRADABLE	5.89	8.25	7.11	93.1	0.54	0.26	0.66	1.46	0.93	517.9		
TOTAL--TRADABLE	502.57	575.74	456.41	4729.9	45.79	18.05	42.37	106.21	49.62	37312.4		
18 PERSONAL CARE HOME	50.21	72.57	69.67	59.1	4.58	2.28	6.47	13.32	0.62	4737.4		
19 PERSONAL CARE SERVICES	0.88	1.96	2.02	48.5	0.08	0.05	0.19	0.33	0.51	119.7		
20 MED CARE RECEIVE HOME	0.22	0.25	0.50	0.0	0.02	0.01	0.05	0.07	0.00	25.9		
21 PRO MEDICAL CARE	0.88	0.98	2.02	387.8	0.08	0.03	0.19	0.30	4.07	103.4		
22 EATING AT HOME	64.11	43.83	70.41	0.0	5.84	1.37	6.54	13.75	0.00	4653.3		
23 EATING OUT	35.99	21.91	5.95	290.5	3.28	0.69	0.55	4.52	3.05	1507.5		
24 SLEEP AND REST	462.47	455.50	477.83	0.0	42.14	14.28	44.35	100.78	0.00	34928.8		
25 VACATION	30.47	30.53	30.65	126.7	2.78	0.96	2.85	6.55	1.33	2283.6		
26 EDUCATION	2.98	4.55	0.00	25.4	0.27	0.14	0.00	0.41	0.27	154.7		
27 RELIGION	6.55	10.36	11.50	94.0	0.60	0.32	1.07	1.99	0.99	709.1		
28 OTHER ORGANIZATIONS	4.69	2.10	2.67	17.8	0.43	0.07	0.25	0.74	0.19	243.8		
29 TELEVISION	130.67	59.60	116.67	54.2	11.93	1.87	10.83	24.62	0.57	8149.0		
30 READING	25.69	24.06	36.34	32.1	2.34	0.75	3.37	6.47	0.34	2229.0		
31 SOCIAL LIFE	64.22	89.48	88.94	389.1	5.85	2.81	8.26	16.91	4.08	5998.6		
32 CONVERSATION	11.12	14.89	26.18	154.8	1.01	0.47	2.43	3.91	1.62	1368.9		
33 OUTDOORS	14.21	2.77	2.07	51.6	1.30	0.09	0.19	1.57	0.54	488.9		
34 ENTERTAINMENT	22.94	10.66	10.30	33.2	2.09	0.33	0.96	3.38	0.35	1111.6		
35 LISTENING TO MUSIC	4.13	6.90	6.08	44.8	0.38	0.22	0.56	1.16	0.47	416.1		
36 PERFORMING	0.50	0.34	1.61	6.3	0.05	0.01	0.15	0.21	0.07	70.0		
37 HOBBIES AND CRAFTS	2.77	6.89	14.10	15.8	0.25	0.22	1.31	1.78	0.17	633.2		
38 PERSONAL LETTERS	1.51	4.13	8.06	7.2	0.14	0.13	0.75	1.02	0.08	363.2		
TOTAL	1440.00	1440.00	1440.00	6568.7	131.21	45.15	133.67	310.03	68.91	107607.4		

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$5000-7999 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	42.6829	2	0.0000	--	----	--
2 TRAVEL TO JOB	7.7904	14	3.1468	8	0.9378	27
3 FOOD PREPARATION	32.1470	3	1.5780	18	1.7648	17
4 HOUSE CLEANING	10.0801	11	0.1049	33	26.2702	2
5 GARDENING	0.6803	33	3.2024	7	0.9353	28
6 PET CARE	0.7517	31	6.2641	5	0.4755	30
7 CLOTHING AND LINENS	13.9556	7	2.1781	13	1.2703	22
8 HOUSE	18.8453	6	20.1898	2	0.1431	33
9 MEDICAL CARE GIVEN	0.8739	29	14.5055	3	0.1971	32
10 CHILD CARE	8.2732	12	0.4089	27	6.9613	6
11 FINANCIAL MANAGEMENT	11.1364	10	1.7950	16	1.5270	19
12 TRAVEL/PRO MEDICAL	0.3136	35	7.4620	4	0.3807	31
13 TRAVEL/EDUCATION	0.2487	37	2.4711	12	1.1997	23
14 TRAVEL/ORG & RELIGION	1.2360	26	2.7249	11	1.0535	24
15 TRAVEL/SOCAL LIFE	3.5724	20	2.7968	10	1.0164	25
16 TRAVEL/LEISURE	0.6054	34	2.8680	9	0.9744	26
17 SHOPPING/NON-TRADABLE	2.4323	22	1.8859	15	1.4962	20
TOTAL--TRADABLE	155.8280		1.3298		2.1407	
18 PERSONAL CARE & HOME	13.9375	8	0.1308	32	21.4839	3
19 PERSONAL CARE SERVICES	0.8378	30	4.2489	6	0.6473	29
20 MED CARE RECEIVE & HOME	0.0746	33	0.0000	--	-----	--
21 PRO MEDICAL CARE	4.3663	18	39.3300	1	0.0734	34
22 EATING AT HOME	13.7516	9	0.0000	--	-----	--
23 EATING OUT	7.5564	15	2.0215	14	1.4628	21
24 SLEEP AND REST	100.7766	1	0.0000	--	-----	--
25 VACATION	7.9080	13	0.5822	26	4.9481	9
26 EDUCATION	0.6803	32	1.7203	17	1.5555	18
27 RELIGION	2.9759	21	1.3911	19	2.0171	16
28 OTHER ORGANIZATIONS	0.9285	28	0.7674	24	3.9621	11
29 TELEVISION	25.1918	4	0.0697	34	43.3383	1
30 READING	6.8058	16	0.1512	31	19.1668	4
31 SOCIAL LIFE	20.9546	5	0.6804	25	4.1439	10
32 CONVERSATION	5.5340	17	1.1862	20	2.4079	15
33 OUTDOORS	2.1152	23	1.1069	22	2.9097	13
34 ENTERTAINMENT	3.7293	19	0.3133	28	9.7074	7
35 LISTENING TO SOUNDS	1.6259	25	1.1295	21	2.4614	14
36 PERFORMING	0.2720	35	0.9389	23	3.1397	12
37 HOBBIES AND CRAFTS	1.9434	24	0.2619	29	10.7215	6
38 PERSONAL LETTERS	1.0910	27	0.2032	30	13.4320	5
TOTAL	378.9343		0.6403		4.4993	

ASSUMPTIONS ABOUT THE THE \$5000-7999 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
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EMPLOYED MEN	3.43	4.37
EMPLOYED WOMEN	1.89	2.73
HOUSEWIVES	2.94	5.19

TOTAL NUMBER OF HOUSEHOLDS	10.49 MILLION
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VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$8000-9999 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES/DAY				1973 \$/HOUSEHOLD				BILLION 1973 \$			
	EMPLOYED		HOUSE-		HOLD		EXPEND-		EMPLOYED		HOUSE-	
	MEN	WOMEN	MEN	WIVES	MEN	WIVES	MEN	WIVES	MEN	WOMEN	MEN	WIVES
			VALUE	OF TIME	VALUE	OF TIME	VALUE	OF TIME	VALUE	OF TIME	VALUE	OF TIME
			ITURES		ITURES		ITURES		ITURES		ITURES	
1 JOB	391.63	268.20	2.64	0.0	0.0	38.65	9.09	0.16	47.89	0.00	15005.2	
2 TRAVEL TO JOB	39.35	27.37	0.35	505.5	505.5	3.88	0.93	0.02	4.83	3.52	1516.8	
3 FOOD PREPARATION	23.07	84.88	157.98	1284.5	1284.5	2.28	2.88	9.39	14.54	8.94	5339.7	
4 HOUSE CLEANING	8.19	37.36	81.45	47.0	47.0	0.81	1.27	4.84	6.91	0.33	2546.8	
5 GARDENING	1.27	2.04	2.72	37.9	37.9	0.13	0.07	0.16	0.36	0.26	124.9	
6 PET CARE	0.95	1.51	1.96	61.9	61.9	0.09	0.05	0.12	0.26	0.43	91.6	
7 CLOTHING AND LINENS	9.76	45.85	66.74	739.1	739.1	0.96	1.55	3.97	6.48	5.14	2422.8	
8 HOUSE	10.77	8.27	12.77	1834.4	1834.4	1.06	1.28	0.76	2.10	12.77	693.2	
9 MEDICAL CARE GIVEN	0.58	0.71	0.87	80.6	80.6	0.06	0.02	0.05	0.13	0.56	45.6	
10 CHILD CARE	6.40	21.76	82.77	134.1	134.1	0.63	0.74	4.92	6.29	0.93	2265.3	
11 FINANCIAL MANAGEMENT	14.28	38.33	43.80	702.7	702.7	1.41	1.30	2.60	5.31	4.89	1935.2	
12 TRAVEL/PRO MEDICAL	0.37	0.61	0.56	28.5	28.5	0.04	0.02	0.03	0.09	0.20	31.9	
13 TRAVEL/EDUCATION	0.80	0.31	0.67	14.3	14.3	0.08	0.01	0.04	0.10	0.10	40.5	
14 TRAVEL/ORG & RELIGION	3.21	1.85	3.33	75.7	75.7	0.32	0.06	0.20	0.58	0.53	186.4	
15 TRAVEL/SOCIAL LIFE	9.62	6.17	8.67	222.8	222.8	0.95	0.21	0.52	1.67	1.55	541.7	
16 TRAVEL/LEISURE	1.60	1.23	1.33	39.6	39.6	0.16	0.04	0.08	0.28	0.27	91.4	
17 SHOPPING/NON-TRADEABLE	6.24	9.72	8.50	122.8	122.8	0.62	0.33	0.51	1.45	0.85	507.0	
TOTAL--TRADEABLE	528.08	556.16	477.11	5930.6	5930.6	52.11	18.85	28.35	99.31	41.28	33390.1	
18 PERSONAL CARE PHONE	63.33	71.25	60.42	71.0	71.0	6.25	2.41	3.59	12.25	0.49	4147.2	
19 PERSONAL CARE SERVICES	1.11	1.93	1.75	78.9	78.9	0.11	0.07	0.10	0.28	0.55	98.5	
20 MED CARE RECEIVE PHONE	0.28	0.24	0.44	0.0	0.0	0.03	0.01	0.03	0.06	0.00	20.6	
21 PRO MEDICAL CARE	1.11	0.96	1.75	459.0	459.0	0.11	0.03	0.10	0.25	3.19	82.4	
22 EATING AT HOME	54.79	49.74	75.17	0.0	0.0	5.41	1.69	4.47	11.56	0.00	3958.5	
23 EATING OUT	30.76	24.87	6.35	374.7	374.7	3.04	0.84	0.35	4.26	2.61	1370.6	
24 SLEEP AND REST	459.44	470.32	476.65	0.0	0.0	45.34	15.94	28.33	89.60	0.00	30112.0	
25 VACATION	33.83	33.76	33.95	176.5	176.5	3.34	1.14	2.02	6.50	1.23	2178.8	
26 EDUCATION	4.90	0.96	0.60	42.9	42.9	0.48	0.03	0.04	0.55	0.30	159.6	
27 RELIGION	8.75	4.29	14.63	117.1	117.1	0.86	0.15	0.87	1.85	0.82	611.9	
28 OTHER ORGANIZATIONS	5.38	6.44	11.99	27.2	27.2	0.53	0.22	0.71	1.46	0.19	502.3	
29 TELEVISION	95.88	67.43	101.26	6.3	6.3	9.46	2.29	6.02	17.76	0.45	5828.6	
30 READING	30.62	24.76	31.84	41.0	41.0	3.02	0.84	1.89	5.75	0.29	1598.6	
31 SOCIAL LIFE	81.40	66.20	83.06	479.3	479.3	8.03	2.24	4.94	15.21	3.34	5920.2	
32 CONVERSATION	8.95	13.95	23.10	172.2	172.2	0.88	0.47	1.37	2.73	1.20	955.8	
33 OUTDOORS	12.42	10.11	9.24	89.3	89.3	1.23	0.34	0.55	2.12	0.62	674.4	
34 ENTERTAINMENT	7.61	4.39	4.68	36.6	36.6	0.75	0.15	0.28	1.18	0.25	374.6	
35 LISTENING TO SOUNDS	5.13	5.06	2.50	54.7	54.7	0.51	0.17	0.15	0.83	0.35	274.0	
36 PERFORMING	0.66	0.82	1.59	11.9	11.9	0.06	0.03	0.09	0.19	0.08	64.6	
37 HOBBIES AND CRAFTS	3.80	16.47	13.95	26.4	26.4	0.36	0.55	0.63	1.74	0.18	663.1	
38 PERSONAL LETTERS	1.97	9.89	7.97	8.0	8.0	0.19	0.33	0.47	1.09	0.05	384.3	
TOTAL	1440.00	1440.00	1440.00	8260.5	8260.5	142.10	43.80	85.58	276.47	57.49	92680.4	

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$8000-9999 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	47.8905	2	0.0000	--	----	--
2 TRAVEL TO JOB	8.3508	11	2.3196	12	1.3734	21
3 FOOD PREPARATION	23.4819	3	1.6743	18	1.6265	20
4 HOUSE CLEANING	7.2409	13	0.1255	32	21.1262	3
5 GARDENING	0.6197	33	2.1102	14	1.3509	22
6 PET CARE	0.6523	32	4.7047	6	0.6052	29
7 CLOTHING AND LINENS	11.6270	8	2.1233	13	1.2601	24
8 HOUSE	14.8695	6	18.4171	2	0.1646	33
9 MEDICAL CARE GIVEN	0.6545	31	12.3116	3	0.2373	32
10 CHILD CARE	7.2212	14	0.4120	27	6.7346	8
11 FINANCIAL MANAGEMENT	10.2013	10	2.5233	10	1.0859	26
12 TRAVEL/PROF. MEDICAL	0.2895	35	6.2227	4	0.4574	31
13 TRAVEL/EDUCATION	0.2286	37	2.4517	11	1.2998	23
14 TRAVEL/ORG & RELIGION	1.1042	27	2.8258	9	1.0959	25
15 TRAVEL/SOCIAL LIFE	3.2242	19	2.8625	8	1.0794	27
16 TRAVEL/LEISURE	0.5477	34	2.9356	7	1.0408	28
17 SHOPPING/NON-TRADABLE	2.3050	22	1.6859	17	1.6556	18
TOTAL--TRADABLE	140.5597		1.2362		2.4060	
18 PERSONAL CARE HOME	12.7479	7	0.1191	33	24.8103	2
19 PERSONAL CARE SERVICES	0.8279	30	5.5728	5	0.5082	30
20 MED CARE RECEIVE PHONE	0.0616	38	0.0000	--	----	--
21 PROF MEDICAL CARE	3.4339	18	38.6705	1	0.0773	34
22 EATING AT HOME	11.5595	9	0.0000	--	----	--
23 EATING OUT	6.8633	15	1.9026	15	1.6319	19
24 SLEEP AND REST	89.6023	1	0.0000	--	----	--
25 VACATION	7.7291	12	0.5640	26	5.2903	9
26 EDUCATION	0.8502	29	1.8705	16	1.8477	17
27 RELIGION	2.6939	21	1.3322	20	2.3047	13
28 OTHER ORGANIZATIONS	1.6510	24	0.3759	28	7.7235	7
29 TELEVISION	18.2118	5	0.0771	34	39.6723	1
30 READING	6.0383	16	0.1501	30	20.1837	4
31 SOCIAL LIFE	18.5488	4	0.6645	25	4.5601	11
32 CONVERSATION	3.9275	17	1.2538	22	2.2775	14
33 OUTDOORS	2.7392	20	0.8548	23	3.4083	12
34 ENTERTAINMENT	1.4323	25	0.6803	24	4.6197	10
35 LISTENING TO SOUNDS	1.2075	26	1.3904	19	2.1693	16
36 PERFORMING	0.2701	35	1.2818	21	2.2611	15
37 HOBBIES AND CRAFTS	1.9262	23	0.2779	29	9.4871	6
38 PERSONAL LETTERS	1.0583	28	0.1453	31	17.9538	5
TOTAL	333.9683		0.6203		4.8058	

	Domestic Services- Child Care and Care for the Elderly (50%)(2) Transportation (5.4%)
11. Financial Management	Stationary and Greeting Cards (50%)(3) Personal Insurance, Retirement and Pensions Miscellaneous Typewriters and Home Use Office Equipment Transportation (5.2%)
12 Travel Associated with Professional Medical Care	Transportation (2%)
13. Travel Associated with Education	Transportation(1%)
14. Travel Associated with Organizations and Religion	Transportation (5.3%)
15. Travel Associated with Social Life and Entertainment	Transportation (15.6%)
16. Travel Associated with Leisure Activities	Transportation (2.7%)
17. Shopping Associated with Non-Tradable Activities	Transportation (8.6%)
Non-Tradable Activities-	
18. Personal Care at Home	Personal Care Products (5) Paper Towels, Napkins, and Tissues (3)
19. Personal Care Outside Home	Personal Care Services (5)
20 Medical Care Received at Home	
21. Professional Medical Care	Health Care Expenses Not Covered by Insurance Health Insurance
22. Eating at Home	

23. Eating Out	Food Away from Home Meals as Pay
24. Sleep and Rest	
25. Vacation	Vacation and Pleasure Trips Owned Vacation Home Luggage, Footlockers, and Trunks (4)
26. Education	Education
27. Religion	Gifts to Religious Organizations (6)
28. Other Organizations	Gifts to Welfare Organizations (6) Gifts to Educational, Political, and Other Organizations (6)
29. Television	Television Television Cable Services (1) TV, Radio, Musical Instrument, and Other Repairs and Rentals (60%)(1)
30. Reading	Reading
31. Social Life	Pets, Toys, and Games (45%) Gifts to Individuals Outside Family (6) Alcoholic Beverages Tobacco Products and Smoking Supplies
32. Conversation	Telephone
33. Outdoors	Boats, Aircraft and Wheel Goods Club and Membership Dues (1) Bicycles, Tricycles, and Powered Carts (1) Sports Equipment (1) Playground, Camping, and Other Equipment (1)
34. Entertainment	Season Tickets, Admissions, and Fees (1)
35. Listening to Sounds	Radios (1) Phonographs, Tape Recorders, and Other (1) Component Systems, Parts and Other (1)

	Records, Reels, and Cassetts (1) TV, Radio, Musical Instrument, and Other Repairs and Rentals (40%) (1)
36. Performing	Musical Instruments and Accessories (1) Lessons (40%)(1)
37. Hobbies and Crafts	Photography (1) Lessons (40%)(1)
38. Personal Letters	Stationary and Greeting Cards (50%)(3)

(1) Taken from interview survey publication.

(2) The integrated diary and interview survey publication gives one figure for "Domestic and Other Household Services", which includes the following classifications from the interview survey publication:

- Domestic Services-Domestic and Other Duties
- Domestic Services-Child Care and Care for Elderly
- Gardening and Lawn Care Services
- Other Household Repairs
- Reupholstering and Furniture Repair
- Appliance Repair and Servicing
- Moving, Freight, and Storage Charges
- Fertilizers and Pesticides

However, these classifications do not sum to match the total shown in the integrated publication. The difference is evidently due to the inclusion of a few miscellaneous items from the diary survey, including locksmith services, small houseplants, seeds, and bulbs. This was resolved by using the figures for the above classifications shown in the interview survey publication, and creating a new classification "Miscellaneous Items" for the difference between the total expenditures for the above classifications and the total expenditures shown in the integrated publication.

(3) These classifications were lumped together under the heading of "Housekeeping and Laundry Supplies" in the integrated diary and interview survey publication. Detailed expenditure data was taken from the diary survey publication, and scaled to make the total of all these classifications match the total shown in the integrated publication.

(4) The integrated diary and interview survey publication gives one figure for "Miscellaneous Household Expense", which includes these classifications from the interview survey publication. However, expenditures on these classifications do not match the total shown in the integrated publication. The difference is evidently due to the inclusion of expenditures on sheds from the diary

survey. This was resolved by adding the difference between the total of these classifications shown in the interview survey publication and the total shown in the integrated publication to the figure for "Other Household Expenses." Expenditures on other classifications were taken directly from the interview survey publication.

(5) These classifications were lumped together under the heading of "Personal Care" in the integrated diary and interview survey publication. Detailed expenditure data was taken from the diary survey publication, and scaled to make the total of all these classifications match the total shown in the integrated publication.

(6) The integrated diary and interview survey publication gives one figure for "Gifts and Contributions", which includes these classifications from the interview survey publication. However, expenditures on these classifications do not sum to match the total shown in the integrated publication. The difference is evidently due to the inclusion of some small contributions from the diary survey. This was resolved by scaling the detailed expenditure data to make the total of all these classifications match the total shown in the integrated publication.

scaled by the factor necessary to ensure that the expenditure shown for a class in the integrated publication equaled the sum of the corresponding expenditures in the diary survey publication.

The most troublesome group of activities to deal with in developing this classification were those related to travel. They will be regarded as tradable, since even though it is not possible to pay someone else to do one's own traveling, it is generally possible to pay to have whatever one is traveling to brought to one's home. For example, if one does not wish to travel to school, one could hire a tutor to give lessons at home. In this sense, travel competes directly with services offered in the market economy.

With the exception of "Travel to Job", the time and expense of travel associated with tradable activities (numbers 3-11) were included in the times and expenses of these activities. "Travel to Job" was felt to be so important that it was made a separate activity. Since travel was considered to be a tradable activity, it seemed inappropriate to include the time and expense of travel associated with non-tradable activities in the times and expenses allocated to these activities. Hence, five special tradable activities were created for them (numbers 12-16).

Travel while on vacation was considered to be different from other types of travel associated with non-tradable activities, since one cannot generally pay to have the vacationland brought to one's home. Furthermore, vacation travel may be an integral part of the activity of vacationing, not simply something which must be done in order to carry out some other activity, as is usually the case for travel associated with other activities. Hence, the time and expense of vacation travel was included in the activity "vacation".

Shopping is similarly a tradable activity, which is associated with most activities, both tradable and non-tradable. The time spent on shopping associated with activities 2-16 were included in the time of these activities, while the time spent on shopping associated with non-tradable activities 18-38 were made into a separate activity "Shopping Associated With Non-Tradable Activities."

Unfortunately, the time allocation study does not break down time spent traveling and shopping into this much detail. While travel activities 13-16 are broken out, as well as travel to job and travel associated with child care, all other travel in the time allocation study is lumped together under "Travel Associated with Purchasing Goods and Services" and "Travel Associated with Personal Needs".

Shopping is broken down into only "Shopping for Everyday Goods", "Shopping for Durable Goods", and "Waiting for Purchase of Goods and Services." There is very little published data which could be used to further breakdown these classifications. Even if data on time allocations by detailed purpose of trip had been collected, it would be difficult to analyze, since consumers so frequently do several types of shopping and errands on a single trip. A Federal Highway Administration study provides some very limited guidance.¹⁰ The sum total of the time allocations for "Travel Associated with Purchasing Goods and Services" and "Travel Associated with Personal Needs" were allocated among activities based on estimates made by the author. Similarly, the time allocations for shopping were allocated among activities based on estimates made by the author. The percentage of the total allocated to each activity is indicated in Table 1.

Except for transportation expenditures while on vacation, the consumer expenditure survey provides no breakdown of transportation expenses by purpose of trip. Transportation expenses were therefore distributed among activities in pro-

¹⁰U.S. Federal Highway Administration, Nationwide Personal Transportation Study; Report no. 10: Purposes of Automobile Trips and Travel, Washington, DC, May, 1974. Additional data from this study is presented in U.S. Department of Transportation, 1974 National Transportation Report, Washington, DC, July, 1975, pp. 133-134.

portion to a weighted average of the travel times of employed men, employed women, and housewives allocated to each activity. The percentage of total non-vacation transportation expense allocated to each activity is indicated in Table 2.

The time allocation study did not survey people who were on overnight trips, hence most vacation time was excluded. In order to estimate time spent vacationing, it is necessary to turn to the Census of Transportation. The average trip duration is estimated from the following distribution of trip durations:¹¹

Duration	1967 Total Person-Trips (millions)	Percent Non-Business
1 Day	31.5	73.6
1 Night	89.7	84.2
2 Nights	94.1	88.6
3 to 5 Nights	75.7	84.9
6 to 9 Nights	34.8	92.5
10 to 15 Nights	20.3	92.2
>16 Nights	15.1	89.3

One day trips will be ignored, as presumably they were included in the time allocation survey under one of the leisure activities. It will be assumed that one night trips lasted an average of 24 hours; two night trips lasted an average of 48 hours; three to five night trips lasted an average of 72 hours; six to nine night trips lasted an average of 96 hours; ten to fifteen night trips lasted an average of 120 hours; and sixteen or more night trips lasted an average of 144 hours.

¹¹U.S. Bureau of the Census, 1967 Census of Transportation: Volume I, National Travel Survey, Washington, DC, July, 1970, p. 24.

age of 96 hours; six to nine night trips lasted an average of 180 hours; ten to fifteen night trips lasted an average of 300 hours; and sixteen nights or more trips lasted an average of 480 hours. Using the number of non-business trips as a weighting factor, an average trip duration of 104 hours may be obtained.

The Census of Transportation also provides data on the number of trips by household income level. From this, the average annual number of non-business overnight trips per person by income level may be calculated (see Table 3). Multiplying this average number of trips by average trip duration of 104 hours gives the following annual number of hours per person spent on overnight vacation trips by income class:

Household Income Level (1967)	Average Annual Number of Hours Spent on Overnight Vacation Trips Per Person
<\$4000	98
\$4,000-\$5,999	185
\$6,000-7,499	205
\$7,500-9,999	168
\$10,000-14,999	140
\$15,000	131
All	151

Estimated average number of minutes per day spent on the activity "vacation" were obtained by simply converting these figures into units of minutes per day. The time spend on all other activities were scaled down to ensure than the sum of all daily activities equaled 1440 minutes (24 hours).

TABLE 3

Calculation of the Annual Number of Non-Business Trips Per Person

Household Income Level	1967 Number of Trips(1)	Percent Non- Business	Estimated Popula- tion(2)	Average Annual Non- Business Trips Per Person
<\$4,000	38.5	91.5	37.4	.94
\$4,000-5,999	52.4	92.5	27.3	1.78
\$6,000-\$7,499	53.5	90.4	24.5	1.97
\$7,500-9,999	70.6	88.0	38.3	1.62
\$10,000-14,999	73.4	80.7	43.9	1.35
>\$15,000	41.3	74.0	24.3	1.26
Total	329.7	86.0	195.8	1.45

1) The number of trips for each family income level was scaled to give a total of 329.7 million trips, the number of trips of one night or more duration recorded above.

2) Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 59, "Money Income in 1967 of Families," U.S. Government Printing Office, Washington, DC, April, 1969, pp. 39,41. Represents sum of families and unrelated individuals. The Census Bureau's \$7,000-7,999 income class was divided evenly between the \$6,000-\$7,499 and \$7,500-9,999 income classes.

Appendix B

ESTIMATION OF AVERAGE WAGE RATES BY HOUSEHOLD INCOME CLASS

Average wage rates by household income class may be obtained by estimating aggregate earnings¹² after taxes by all persons in an income class, and dividing this by an estimate of the aggregate number of person-hours worked by individuals in the income class. Aggregate earnings for an income class may be estimated by multiplying average earnings of each household in an income class by the total number of households in the income class. Both sets of data are given by the Consumer Expenditure Survey. Aggregate earnings may then be multiplied by one minus the tax rate to give aggregate earnings by families after taxes (see Table 4). The Consumer Expenditure Survey shows taxes paid by each type of tax, hence the tax rate may be easily calculated. The tax rate includes federal, state, and local income taxes. Although it would be appropriate to include Social Security taxes in the tax rate as well, the Consumer Expenditure Survey includes Social Security taxes in the "Health Insurance"

¹²As used in this report, "earnings" refers only to wages, salaries, and self-employment income, while "income" includes transfer payments, such as social security and welfare, and property income, such as rents and dividends.

and "Personal Insurance, Retirement, and Pensions" categories. It is unfortunately not possible to recover the cost of Social Security taxes from this data. After-tax wages will be used in this study, since the after-tax wage is the value of time as perceived by the individual involved.

TABLE 4

Aggregate Annual Earnings by Income Class

Household Income Class	Number of House- holds(1) (Millions)	Earnings Per Household ($\$$)	Aggregate Earnings (Mil- ion $\$$)	Tax Rate	Aggregate Earnings After Tax (Mil- lion $\$$)
<\$3,000	9.572	292.48	2799.6	3.8%	2693.2
\$3,000-3,999	4.214	1198.56	5050.7	3.6%	4868.9
\$4,000-4,999	3.827	2115.49	8095.0	4.9%	7699.3
\$5,000-5,999	3.466	3006.97	10422.2	6.7%	9723.9
\$6,000-6,999	3.591	4120.37	14796.2	7.9%	13,627.3
\$7,000-7,999	3.43	5350.16	18351.0	9.7%	16,571.0
\$8,000-9,999	6.963	7018.49	48,870.0	11.2%	43,396.3
\$10,000-11,999	6.629	9422.01	62,458.5	12.9%	54,501.4
\$12,000-14,999	8.844	11,784.39	104,221.1	14.0%	89,630.2
\$15,000-19,999	10.555	15,504.39	163,648.1	15.2%	138,774.2
\$20,000-24,999	5.309	20,211.54	107,303.1	16.6%	89,490.8
>\$25,000	4.815	32,654.29	157,230.4	18.6%	127,985.6

(1) 3.773 million households who did not report their income were distributed over income classes in proportion to the number of households reporting an income in each class.

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey: Integrated Diary and Interview Survey Data, Bulletin 1992, U.S. Government Printing Office, Washington, DC, 1978, pp. 24-35.

Calculation of the aggregate number of person-hours worked by income class is a bit more difficult. Beginning with the year 1975, the Census Bureau began publishing data on the number of full-time year-round earners¹³ per family by income class. Thus, one can estimate the number of full-time year-round earners in families simply by multiplying the number of families by the number of full-time year-round earners (see Table 5).

The Census Bureau, however, defines a family as two or more persons related by blood, marriage, or adoption living together. Since this study is concerned with all households, including those consisting of only one person, it is necessary to add the number of full-time year-round earners among what the Census Bureau calls "unrelated individuals." Fortunately, data has also been published on this (see Table 6). The result is the number of full-time year-round earners in each income class.

The total number of full-time earners may be estimated from these figures by assuming the number of full-time earners in each income class is proportional to the number of full-time year-round earners. Thus, the total number of full-time earners is distributed among income classes in

¹³A "year-round" earner is someone who was employed 50 or more weeks in the previous year.

TABLE 5

Number of Full-Time Year-Round Earners in Families

Household Income Class	Number of Families(1) (000)	Full-Time Year-Round Earners Per Family(2)	Family Full-Time Year-Round Earners (000)
<\$1,000	605.58	.22	133.23
\$1,000-1,499	385.37	.22	84.78
\$1,500-1,999	605.58	.22	133.23
\$2,000-2,499	770.74	.11	84.78
\$2,500-2,999	935.90	.11	102.95
\$3,000-3,499	1101.06	.10	110.11
\$3,500-4,000	1156.11	.10	115.61
\$4,000-4,999	2477.39	.17	421.16
\$5,000-5,999	2532.44	.26	658.43
\$6,000-6,999	2642.54	.34	898.46
\$7,000-7,999	2697.60	.46	1240.90
\$8,000-8,999	2807.70	.53	1488.08
\$9,000-9,999	2697.60	.64	1726.46
\$10,000-11,999	5890.67	.75	4418.00
\$12,000-14,999	8147.84	.92	7496.01
\$15,000-24,999	14,478.94	1.19	17,229.94
\$25,000-\$49,999	4569.40	1.47	6717.02
>\$50,000	550.53	1.16	638.61

(1) Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 97, "Money Income in 1973 of Families and Persons in the United States", U.S. Government Printing Office, Washington, DC, 1975, p. 46.

(2) Source: U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 105, "Money Income in 1975 of Families and Persons in the United States", U.S. Government Printing Office, Washington, DC, 1977, p. 112.

proportion to the number of full-time year-round earners.

In a similar fashion, the number of part-time earners in each income range may be obtained by distributing the total number of part-time earners over the income ranges in proportion to the number of full-time year-round earners in

ASSUMPTIONS ABOUT THE THE \$6000-9999 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
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EMPLOYED MEN	3.69	4.40
EMPLOYED WOMEN	2.03	2.74
HOUSEHOLDS	2.84	3.44

TOTAL NUMBER OF HOUSEHOLDS	6.96 MILLION
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VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$10,000-11,999 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES/DAY				1973 \$/HOUSE-				BILLION 1973 \$			
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE- WIVES	HOLD MARKET EXPENDITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE- WIVES VALUE OF TIME	TOTAL MARKET EXPENDITURES	TOTAL VALUE OF TIME	TOTAL MARKET EXPENDITURES	PERSON HOUSES (MIL- LIONS)	
1 JOB	400.67	309.90	0.00	0.0	49.74	13.23	0.00	0.00	62.97	0.00	19721.5	
2 TRAVEL TO JOB	40.25	27.15	0.00	617.0	5.00	1.16	0.00	0.00	6.16	4.09	1898.8	
3 FOOD PREPARATION	23.21	99.87	147.93	1393.9	2.88	4.26	8.24	9.24	15.38	9.24	5791.9	
4 HOUSE CLEANING	6.84	45.06	74.85	50.1	0.85	1.92	4.17	6.94	6.94	0.33	2654.7	
5 GARDENING	2.40	1.80	5.55	46.5	0.30	0.08	0.31	0.68	0.31	0.47	227.6	
6 PET CARE	1.73	1.32	3.64	70.7	0.21	0.06	0.21	0.48	0.48	0.31	161.3	
7 CLOTHING AND LINENS	7.15	45.96	69.81	862.4	0.89	1.96	3.89	6.74	6.74	5.72	2592.8	
8 HOUSE	15.50	6.74	10.29	1933.5	1.92	0.29	0.57	2.78	2.78	13.15	859.2	
9 MEDICAL CARE GIVEN	0.62	0.61	0.94	75.8	0.08	0.03	0.05	0.16	0.16	0.50	52.1	
10 CHILD CARE	9.67	28.96	80.22	157.6	1.20	1.24	4.47	6.90	6.90	1.04	2521.8	
11 FINANCIAL MANAGEMENT	23.70	26.35	36.03	919.1	2.94	1.12	2.01	6.07	6.07	6.09	2051.7	
12 TRAVEL/PRO MEDICAL	0.52	0.53	0.57	34.9	0.07	0.02	0.03	0.12	0.12	0.23	39.7	
13 TRAVEL/EDUCATION	0.82	0.35	0.72	17.4	0.10	0.01	0.04	0.16	0.16	0.12	48.7	
14 TRAVEL/ORG & RELIGION	3.29	2.07	3.58	92.4	0.41	0.09	0.20	0.70	0.70	0.61	223.5	
15 TRAVEL/SOCAL LIFE	9.86	6.90	9.32	271.9	1.22	0.29	0.52	2.04	2.04	1.80	656.1	
16 TRAVEL/LEISURE	1.64	1.33	1.43	47.1	0.20	0.06	0.08	0.34	0.34	0.31	111.7	
17 SHOPPING/NON-TRADABLE	7.91	7.28	8.06	149.9	0.98	0.31	0.45	1.74	1.74	0.99	574.3	
TOTAL--TRADABLE	555.79	612.22	453.13	6790.0	68.99	26.14	25.23	120.36	120.36	45.02	40177.5	
18 PERSONAL CARE HOME	55.25	70.23	72.73	85.3	6.86	3.00	4.05	13.91	13.91	0.57	4740.7	
19 PERSONAL CARE SERVICES	0.97	1.90	2.11	93.2	0.12	0.05	0.12	0.32	0.32	0.62	113.6	
20 MED CARE RECEIVE HOME	0.24	0.24	0.53	0.0	0.03	0.01	0.03	0.07	0.07	0.00	23.5	
21 PRO MEDICAL CARE	0.97	0.95	2.11	488.8	0.12	0.04	0.12	0.28	0.28	3.24	93.9	
22 EATING AT HOME	53.02	44.25	68.45	0.0	6.58	1.89	3.81	12.28	12.28	0.00	4042.9	
23 EATING OUT	29.77	22.12	5.78	444.6	3.70	0.94	0.32	4.95	4.95	2.95	1562.0	
24 SLEEP AND REST	450.28	479.97	488.79	0.0	55.90	20.49	27.21	103.60	103.60	0.00	34546.1	
25 VACATION	27.74	27.74	27.66	214.2	3.44	1.18	1.54	6.17	6.17	1.42	2047.3	
26 EDUCATION	13.14	2.50	1.40	65.4	1.63	0.11	0.08	1.82	1.82	0.43	515.9	
27 RELIGION	8.11	9.25	14.36	139.9	1.01	0.30	0.80	2.20	2.20	0.92	747.4	
28 OTHER ORGANIZATIONS	9.08	0.35	6.73	37.4	1.13	0.02	0.37	1.52	1.52	0.25	443.2	
29 TELEVISION	101.72	45.45	100.11	65.1	12.63	1.94	5.57	20.14	20.14	0.44	6315.6	
30 READING	34.70	20.02	39.04	45.3	4.31	0.85	2.17	7.34	7.34	0.30	2345.6	
31 SOCIAL LIFE	54.00	54.88	63.53	496.1	6.70	2.34	4.65	13.70	13.70	3.29	4597.5	
32 CONVERSATION	14.51	23.87	32.77	164.0	1.80	1.02	1.82	4.64	4.64	1.22	1630.2	
33 OUTDOORS	10.77	6.62	2.51	118.5	1.34	0.28	0.14	1.76	1.76	0.79	544.8	
34 ENTERTAINMENT	4.19	4.63	6.18	49.6	0.52	0.20	0.34	1.06	1.06	0.33	359.4	
35 LISTENING TO SOUNDS	5.35	2.39	2.48	59.1	0.66	0.10	0.14	0.90	0.90	0.39	276.6	
36 PERFORMING	1.09	0.32	2.00	12.1	0.14	0.01	0.11	0.26	0.26	0.09	82.8	
37 HOBBIES AND CRAFTS	6.02	6.32	17.51	31.8	0.75	0.27	0.97	1.99	1.99	0.21	680.2	
38 PERSONAL LETTERS	3.28	3.70	10.01	8.8	0.41	0.16	0.56	1.13	1.13	0.06	387.2	
TOTAL	1440.00	1440.00	1440.00	9428.8	178.75	61.48	80.16	320.40	320.40	62.51	105372.3	

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$10,000-11,999 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	62.9678	2	0.0000	--	----	--
2 TRAVEL TO JOB	10.2470	11	2.1543	13	1.5049	22
3 FOOD PREPARATION	24.8222	3	1.5956	16	1.6642	21
4 HOUSE CLEANING	7.2726	16	0.1250	32	20.9141	4
5 GARDENING	0.9920	30	1.3546	19	2.2172	18
6 PET CARE	0.9530	31	2.9041	7	1.0344	28
7 CLOTHING AND LINENS	12.4535	8	2.2137	12	1.1781	24
8 HOUSE	15.9341	6	15.3060	2	0.2117	33
9 MEDICAL CARE GIVEN	0.6568	33	9.6483	3	0.3100	32
10 CHILD CARE	7.9477	12	0.4144	28	6.6056	7
11 FINANCIAL MANAGEMENT	12.1660	10	2.9700	6	0.9966	29
12 TRAVEL/PRO MEDICAL	0.3504	35	5.8216	4	0.5162	30
13 TRAVEL/EDUCATION	0.2721	37	2.3718	11	1.3553	23
14 TRAVEL/ORG & RELIGION	1.3082	27	2.7405	10	1.1351	25
15 TRAVEL/SOCAL LIFE	3.8396	18	2.7476	9	1.1299	26
16 TRAVEL/LEISURE	0.6547	34	2.7925	8	1.0982	27
17 SHOPPING/NON-TRADABLE	2.7355	21	1.7305	15	1.7525	19
TOTAL--TRADABLE	165.3750		1.1205		2.6735	
18 PERSONAL CARE @HOME	14.4714	7	0.1193	33	24.5946	2
19 PERSONAL CARE SERVICES	0.9369	32	5.4428	5	0.5156	31
20 MED CARE RECEIVE @HOME	0.0596	38	0.0000	--	----	--
21 PRO MEDICAL CARE	3.5187	19	34.5064	1	0.0859	34
22 EATING AT HOME	12.2820	9	0.0000	--	----	--
23 EATING OUT	7.9092	13	1.8970	14	1.6835	20
24 SLEEP AND REST	103.5986	1	0.0000	--	----	--
25 VACATION	7.5671	15	0.6937	26	4.3421	9
26 EDUCATION	2.2493	23	0.8402	23	4.1893	10
27 RELIGION	3.1216	20	1.2317	20	2.3909	15
28 OTHER ORGANIZATIONS	1.7653	25	0.5590	27	6.1260	8
29 TELEVISION	20.5784	4	0.0694	34	45.9413	1
30 READING	7.6356	14	0.1260	31	24.4362	3
31 SOCIAL LIFE	16.9894	5	0.7154	25	4.1653	11
32 CONVERSATION	5.8642	17	0.7482	24	3.8077	12
33 OUTDOORS	2.5450	22	1.4423	17	2.2389	17
34 ENTERTAINMENT	1.3908	26	0.9169	22	3.2322	14
35 LISTENING TO SOUNDS	1.2957	28	1.4158	18	2.3087	16
36 PERFORMING	0.3408	36	0.9655	21	3.2616	13
37 HCSBIES AND CRAFTS	2.2028	24	0.3098	29	9.4541	6
38 PERSONAL LETTERS	1.1850	29	0.1507	30	19.3017	5
TOTAL	392.9089		0.5677		5.1252	

ASSUMPTIONS ABOUT THE THE \$10,000-11,999 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
EMPLOYED MEN	3.74	5.46
EMPLOYED WOMEN	2.06	3.41
HOUSEWIVES	2.79	3.28
TOTAL NUMBER OF HOUSEHOLDS		6.63 MILLION

VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$12,000-19,999 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES-DAY				1973 \$/HOUSE-				BILLION 1973 \$				PERSON HOURS (MIL-LIONS)
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE-WIVES	HOLD MARKET EXPENDITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE-WIVES VALUE OF TIME	TOTAL VALUE OF TIME	TOTAL MARKET EXPENDITURES				
1 JOB	391.26	325.40	10.42	0.0	203.64	58.02	1.66	263.32	0.00	77763.0			
2 TRAVEL TO JOB	38.09	31.29	0.36	759.4	19.82	5.58	0.06	25.46	14.73	7500.5			
3 FOOD PREPARATION	26.68	84.73	152.17	178.4	13.89	15.11	24.24	53.23	32.56	19207.1			
4 HOUSE CLEANING	8.21	41.84	74.00	65.0	4.27	7.46	11.79	23.51	1.26	8772.3			
5 GARDENING	1.32	2.06	3.12	67.5	0.69	0.37	0.50	1.55	1.31	520.8			
6 PET CARE	1.02	1.52	2.23	87.4	0.53	0.27	0.36	1.16	1.70	385.4			
7 CLOTHING AND LINENS	7.56	20.14	75.77	1093.1	3.93	3.59	12.07	19.59	21.21	7032.7			
8 HOUSE	18.61	6.20	10.48	2415.5	9.79	1.11	1.67	12.57	46.86	3555.5			
9 MEDICAL CARE GIVEN	0.65	0.65	0.93	100.4	0.34	0.12	0.15	0.60	1.95	191.2			
10 CHILD CARE	8.69	19.29	69.52	197.4	4.52	3.44	11.07	19.03	3.83	6746.1			
11 FINANCIAL MANAGEMENT	20.17	23.07	36.90	1304.8	10.50	4.11	5.88	20.49	25.31	6640.8			
12 TRAVEL/PRO MEDICAL	0.60	0.50	0.57	42.9	0.31	0.09	0.09	0.49	0.83	151.1			
13 TRAVEL/EDUCATION	0.79	0.46	0.83	21.5	0.41	0.08	0.13	0.62	0.42	187.5			
14 TRAVEL/ORG & RELIGION	3.14	2.77	4.13	113.7	1.64	0.49	0.66	2.79	2.21	872.9			
15 TRAVEL/SOCIAL LIFE	9.43	9.23	10.73	334.7	4.91	1.65	1.71	8.25	6.49	2597.3			
16 TRAVEL/LEISURE	1.57	1.85	1.65	57.9	0.62	0.33	0.26	1.41	1.12	449.8			
17 SHOPPING/NON-TRADABLE	7.69	8.87	9.06	184.5	4.00	1.58	1.44	7.03	3.58	2245.3			
TOTAL--TRADABLE	545.66	579.84	462.87	8524.0	284.00	103.38	73.72	461.10	165.37	144819.0			
18 PERSONAL CARE @HOME	54.51	64.21	66.10	102.0	28.37	11.45	10.53	50.35	1.98	16135.3			
19 PERSONAL CARE SERVICES	0.96	1.74	1.92	118.6	0.50	0.31	0.31	1.11	2.30	376.5			
20 MED CARE RECEIVE @HOME	0.24	0.22	0.48	0.0	0.12	0.04	0.08	0.24	0.00	76.6			
21 PRO MEDICAL CARE	0.96	0.87	1.92	569.2	0.50	0.15	0.31	0.95	11.04	306.2			
22 EATING AT HOME	60.81	48.93	70.09	0.0	31.65	8.72	11.16	51.53	0.00	15946.4			
23 EATING OUT	34.14	24.46	5.92	568.8	17.77	4.36	0.94	23.07	11.03	6758.9			
24 SLEEP AND REST	456.58	464.67	473.56	0.0	237.64	82.85	75.42	395.91	0.00	124546.4			
25 VACATION	23.17	23.09	23.07	319.5	12.06	4.12	3.67	19.85	6.20	6224.7			
26 EDUCATION	5.55	4.46	10.38	119.8	2.89	0.80	1.65	5.34	2.32	1687.1			
27 RELIGION	4.55	2.53	15.84	195.5	2.37	0.45	2.52	5.34	3.79	1719.1			
28 OTHER ORGANIZATIONS	6.83	2.18	19.18	58.2	3.56	0.39	3.05	7.00	1.13	2182.5			
29 TELEVISION	65.00	57.76	74.03	78.9	44.24	10.30	11.79	66.33	1.53	20032.2			
30 READING	43.10	30.94	33.45	60.2	22.43	5.52	5.33	33.28	1.17	10053.8			
31 SOCIAL LIFE	49.58	73.06	97.11	621.8	25.80	13.03	15.47	54.30	12.06	18020.9			
32 CONVERSATION	13.33	13.57	31.12	210.6	6.94	2.42	4.96	14.31	4.08	4645.6			
33 OUTDOORS	16.49	9.57	1.09	199.5	8.58	1.71	0.17	10.46	3.87	2980.0			
34 ENTERTAINMENT	21.61	14.23	5.21	62.6	11.25	2.54	0.63	14.61	1.21	4261.9			
35 LISTENING TO SOUNDS	4.07	6.26	1.78	72.5	2.12	1.12	0.28	3.52	1.41	1138.9			
36 PERFORMING	1.36	0.53	3.04	25.2	0.71	0.09	0.48	1.28	0.45	396.2			
37 HOBBIES AND CRAFTS	7.45	10.56	26.62	44.0	3.88	1.88	4.24	10.00	0.85	3376.0			
38 PERSONAL LETTERS	4.07	6.33	15.21	12.6	2.12	1.13	2.42	5.67	0.24	1928.5			
TOTAL	1440.00	1440.00	1440.00	11961.3	749.48	256.74	229.34	1235.56	232.05	387611.9			

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE \$12,000-19,999 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	263.3188	2	0.0000	--	----	--
2 TRAVEL TO JOB	40.1922	11	1.9641	15	1.7283	19
3 FOOD PREPARATION	85.7891	3	1.6952	16	1.6347	20
4 HOUSE CLEANING	24.7764	15	0.1438	30	18.6356	5
5 GARDENING	2.8632	31	2.5163	10	1.1849	26
6 PET CARE	2.8515	32	4.3987	6	0.6820	29
7 CLOTHING AND LINENS	40.7956	10	3.0153	8	0.9236	27
8 HOUSE	59.4268	5	13.1800	2	0.2681	33
9 MEDICAL CARE GIVEN	2.5506	33	10.1865	3	0.3093	32
10 CHILD CARE	22.6501	16	0.5676	26	4.9703	9
11 FINANCIAL MANAGEMENT	45.8027	9	3.8117	7	0.8095	28
12 TRAVEL/PRO MEDICAL	1.3223	36	5.5067	5	0.5888	30
13 TRAVEL/EDUCATION	1.0388	37	2.2197	13	1.4958	21
14 TRAVEL/ORG & RELIGION	4.9919	28	2.5268	9	1.2632	24
15 TRAVEL/SOCAL LIFE	14.7525	19	2.4956	11	1.2723	23
16 TRAVEL/LEISURE	2.5331	34	2.4979	12	1.2547	25
17 SHOPPING/NON-TRADABLE	10.6062	23	1.5940	18	1.9634	18
TOTAL--TRADABLE	626.4700		1.1419		2.7864	
18 PERSONAL CARE @HOME	52.3273	7	0.1226	32	25.4435	3
19 PERSONAL CARE SERVICES	3.4129	30	6.1097	4	0.4835	31
20 MED CARE RECEIVE @HOME	0.2394	38	0.0000	--	-----	--
21 PRO MEDICAL CARE	12.0002	21	36.0600	1	0.0867	34
22 EATING AT HOME	51.5343	8	0.0000	--	-----	--
23 EATING OUT	34.1067	13	1.6325	17	2.0910	17
24 SLEEP AND REST	395.9065	1	0.0000	--	-----	--
25 VACATION	26.0497	14	0.9958	23	3.2024	12
26 EDUCATION	7.6590	26	1.3772	19	2.2963	16
27 RELIGION	9.1327	24	2.2062	14	1.4079	22
28 OTHER ORGANIZATIONS	8.1291	25	0.5174	27	6.1986	8
29 TELEVISION	67.8599	4	0.0764	34	43.3185	1
30 READING	34.4454	12	0.1161	33	26.5032	2
31 SOCIAL LIFE	66.3586	5	0.6694	25	4.5005	10
32 CONVERSATION	18.3594	17	0.8793	24	3.5044	11
33 OUTDOORS	14.3344	20	1.2988	20	2.7037	14
34 ENTERTAINMENT	15.8276	18	0.2848	28	12.0306	6
35 LISTENING TO SOUNDS	4.9225	29	1.2346	21	2.5008	15
36 PERFORMING	1.7336	35	1.1348	22	2.9561	13
37 HOBBIES AND CRAFTS	10.6557	22	0.2530	29	11.7083	7
38 PERSONAL LETTERS	5.9119	27	0.1264	31	23.2578	4
TOTAL	1467.6143		0.5987		5.3245	

ASSUMPTIONS ABOUT THE THE \$12,000-19,999 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
EMPLOYED MEN	4.01	21.34
EMPLOYED WOMEN	2.20	13.32
HOUSEWIVES	2.73	9.59
TOTAL NUMBER OF HOUSEHOLDS		19.40 MILLION

VALUE OF TIME VS. MARKET EXPENDITURES FOR THE OVER \$20,000 HOUSEHOLD INCOME CLASS

ACTIVITY	MINUTES/DAY				1973 \$/HOUSE-				BILLION 1973 \$			
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE- WIVES	HOLD MARKET EXPEND- ITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE- WIVES VALUE OF TIME	TOTAL VALUE OF TIME	TOTAL MARKET EXPEND- ITURES	PERSON HOURS (MIL- LIONS)		
1 JOB	374.25	292.64	4.25	0.0	185.69	49.87	0.34	235.90	0.00	48695.6		
2 TRAVEL TO JOB	52.92	32.23	1.42	1035.3	26.26	5.49	0.11	31.86	10.49	6412.6		
3 FOOD PREPARATION	23.55	79.79	146.63	2097.6	11.69	13.60	11.60	37.08	21.23	10865.5		
4 HOUSE CLEANING	7.42	49.76	74.47	122.5	3.68	8.48	5.99	18.15	1.24	5625.8		
5 GARDENING	1.45	4.96	4.67	122.6	0.72	0.85	0.38	1.94	1.24	539.5		
6 PET CARE	1.07	3.44	3.34	108.0	0.53	0.59	0.27	1.39	1.09	382.4		
7 CLOTHING AND LINENS	6.62	30.51	44.35	1725.7	3.29	5.20	3.57	12.05	17.47	3590.1		
8 HOUSE	19.33	7.68	18.69	3482.6	9.62	1.31	1.50	12.43	35.24	2578.2		
9 MEDICAL CARE GIVEN	0.55	0.64	1.23	136.0	0.27	0.11	0.10	0.48	1.38	120.2		
10 CHILD CARE	6.58	18.74	56.45	253.0	3.27	3.19	4.54	11.00	2.56	3314.7		
11 FINANCIAL MANAGEMENT	22.60	35.48	62.37	2129.6	11.21	6.05	5.02	22.28	21.55	5803.1		
12 TRAVEL/PRO MEDICAL	0.46	0.57	0.90	58.5	0.23	0.10	0.07	0.40	0.59	98.8		
13 TRAVEL/EDUCATION	9.69	0.32	0.92	29.3	0.34	0.05	0.07	0.47	0.30	106.2		
14 TRAVEL/ORG & RELIGION	2.78	1.93	4.62	155.2	1.38	0.33	0.37	2.08	1.57	487.9		
15 TRAVEL/SOCAL LIFE	8.33	6.44	12.00	456.7	4.13	1.10	0.97	6.19	4.62	1442.4		
16 TRAVEL/LEISURE	1.39	1.29	1.85	79.0	0.69	0.22	0.15	1.06	0.80	247.4		
17 SHOPPING/NON-TRADABLE	6.45	8.09	13.17	251.8	3.20	1.38	1.06	5.64	2.55	1404.0		
TOTAL--TRADABLE	536.49	574.43	451.33	12245.4	265.19	97.90	36.31	400.40	123.92	91814.9		
18 PERSONAL CARE PHONE	51.31	73.70	76.78	131.1	25.46	12.56	6.18	44.20	1.33	10827.4		
19 PERSONAL CARE SERVICES	0.90	1.99	2.23	165.1	0.45	0.34	0.18	0.97	1.88	254.8		
20 MED CARE RECEIVE PHONE	0.23	0.25	0.55	0.0	0.11	0.04	0.04	0.20	0.00	50.1		
21 PRO MEDICAL CARE	0.90	1.00	2.23	772.2	0.45	0.17	0.18	0.80	7.81	200.6		
22 EATING AT HOME	51.86	53.80	69.49	0.0	25.73	9.17	5.59	40.49	0.00	9569.3		
23 EATING OUT	29.12	26.90	5.87	883.7	14.45	4.58	0.47	19.50	8.94	4182.4		
24 SLEEP AND REST	481.81	468.03	471.25	0.0	239.05	79.76	37.92	356.73	0.00	81857.9		
25 VACATION	21.66	21.65	21.67	717.6	10.75	3.69	1.74	16.18	7.26	3727.6		
26 EDUCATION	13.05	4.68	13.11	388.2	6.47	0.83	1.05	8.35	3.93	1802.8		
27 RELIGION	6.23	13.35	9.95	362.4	3.09	2.28	0.80	6.17	3.67	1573.7		
28 OTHER ORGANIZATIONS	0.22	0.00	9.00	208.6	0.11	0.01	0.72	0.83	2.11	293.2		
29 TELEVISION	74.07	48.32	65.73	90.4	36.75	8.23	5.29	50.28	0.91	11093.4		
30 READING	57.26	38.74	57.68	96.1	29.41	6.60	4.64	39.65	0.97	8359.9		
31 SOCIAL LIFE	67.61	39.59	112.29	1170.5	33.54	6.74	9.03	49.32	11.85	11472.3		
32 CONVERSATION	13.92	26.19	28.32	263.3	6.91	4.46	2.28	13.65	2.65	3503.0		
33 OUTDOORS	11.05	5.07	1.14	399.3	5.49	0.86	0.09	6.45	4.04	1275.7		
34 ENTERTAINMENT	2.57	13.49	14.33	111.4	1.28	2.30	1.15	4.73	1.13	1395.4		
35 LISTENING TO SOUNDS	10.71	7.50	1.61	105.7	5.32	1.28	0.13	6.72	1.07	1391.4		
36 PERFORMING	0.95	0.64	1.73	58.0	0.47	0.11	0.14	0.72	0.59	170.1		
37 HOBBIES AND CRAFTS	5.22	12.77	15.10	76.9	2.59	2.19	1.22	5.98	0.78	1610.8		
38 PERSONAL LETTERS	2.85	7.66	5.63	16.8	1.41	1.31	0.69	3.41	0.17	928.5		
TOTAL	1440.00	1440.00	1440.00	18283.4	714.47	245.40	115.86	1075.73	185.03	247854.5		

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR THE OVER \$20,000 HOUSEHOLD INCOME CLASS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	235.8998	2	0.0000	--	----	--
2 TRAVEL TO JOB	42.3510	9	1.6355	23	3.0382	12
3 FOOD PREPARATION	58.3070	4	1.9535	20	1.7468	17
4 HOUSE CLEANING	19.3934	15	0.2204	30	14.6395	5
5 GARDENING	3.1791	29	2.3037	17	1.5625	21
6 PET CARE	2.4793	32	2.6589	14	1.2679	25
7 CLOTHING AND LINENS	29.5275	12	4.8674	7	0.6897	28
8 HOUSE	47.6747	6	13.1555	2	0.3527	32
9 MEDICAL CARE GIVEN	1.8567	33	11.4455	3	0.3490	33
10 CHILD CARE	13.5624	17	0.7725	26	4.2962	9
11 FINANCIAL MANAGEMENT	43.8282	8	3.7138	8	1.0337	27
12 TRAVEL/PRO MEDICAL	0.9916	36	5.9976	6	0.6737	29
13 TRAVEL/EDUCATION	0.7696	37	2.7897	15	1.5984	19
14 TRAVEL/ORG & RELIGION	3.6480	27	3.2184	11	1.3232	23
15 TRAVEL/SOCIAL LIFE	10.8161	19	3.2043	12	1.3402	22
16 TRAVEL/LEISURE	1.8553	34	3.2329	10	1.3210	24
17 SHOPPING/NON-TRADABLE	8.1557	23	1.8148	22	2.2126	14
TOTAL--TRADABLE	524.3245		1.3497		3.2310	
18 PERSONAL CARE PHONE	45.5239	7	0.1225	32	35.3256	3
19 PERSONAL CARE SERVICES	2.8483	31	7.3909	4	0.5126	30
20 MED CARE RECEIVE PHONE	0.1939	39	0.0000	--	-----	--
21 PRO MEDICAL CARE	8.6097	22	38.9526	1	0.1018	34
22 EATING AT HOME	40.4913	11	0.0000	--	-----	--
23 EATING OUT	28.4459	13	2.1383	19	2.1808	15
24 SLEEP AND REST	356.7312	1	0.0000	--	-----	--
25 VACATION	23.4402	14	1.9482	21	2.2279	13
26 EDUCATION	12.2890	18	2.1793	18	2.1279	16
27 RELIGION	0.8360	21	2.3307	16	1.6818	18
28 OTHER ORGANIZATIONS	2.9431	30	7.1988	5	0.3941	31
29 TELEVISION	51.1905	5	0.0825	34	54.9486	1
30 READING	40.6239	10	0.1097	33	40.7793	2
31 SOCIAL LIFE	61.1685	3	1.0325	24	4.1640	11
32 CONVERSATION	16.3143	16	0.7607	28	5.1222	8
33 OUTDOORS	10.4861	20	3.1674	13	1.5952	20
34 ENTERTAINMENT	5.8550	26	0.8079	25	4.1939	10
35 LISTENING TO SOUNDS	7.7920	24	0.7685	27	6.2868	7
36 PERFORMING	1.3951	35	3.4485	9	1.2247	26
37 HOBBIES AND CRAFTS	6.7593	25	0.4832	29	7.6854	6
38 PERSONAL LETTERS	3.5822	28	0.1826	31	20.1299	4
TOTAL	1260.7553		0.7465		5.8138	

ASSUMPTIONS ABOUT THE THE OVER \$20,000 HOUSEHOLD INCOME CLASS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
EMPLOYED MEN	5.69	14.33
EMPLOYED WOMEN	3.13	8.95
HOUSEWIVES	2.64	5.01
TOTAL NUMBER OF HOUSEHOLDS		10.12 MILLION

VALUE OF TIME VS. MARKET EXPENDITURES FOR ALL HOUSEHOLDS

ACTIVITY	MINUTES/DAY			1973 \$/HOUSE-			BILLION 1973 \$				PERSON HOUSE- HOLDS (MIL- LIONS)
	EMPLOYED MEN	EMPLOYED WOMEN	HOUSE- WIVES	HOLD MARKET EXPEND- ITURES	EMPLOYED MEN VALUE OF TIME	EMPLOYED WOMEN VALUE OF TIME	HOUSE- WIVES VALUE OF TIME	TOTAL VALUE OF TIME	TOTAL MARKET EXPEND- ITURES		
1 JOB	391.80	298.28	3.98	0.0	525.90	143.09	4.07	673.05	0.00	183565.8	
2 TRAVEL TO JOB	40.69	28.31	0.43	565.5	59.13	14.29	0.45	73.87	40.27	18541.5	
3 FOOD PREPARATION	24.51	86.84	155.56	1360.9	34.08	39.45	95.22	168.75	96.91	58214.8	
4 HOUSE CLEANING	7.48	42.41	77.17	56.5	10.46	20.92	46.34	77.73	4.02	27268.5	
5 GARDENING	1.67	1.88	3.60	54.9	2.03	1.40	1.88	5.31	3.91	1669.9	
6 PET CARE	1.23	1.38	2.55	65.9	1.52	1.00	1.34	3.85	4.69	1208.2	
7 CLOTHING AND LINENS	7.57	33.92	66.17	862.8	9.96	13.67	37.99	61.61	61.44	23264.4	
8 HOUSE	15.45	6.84	11.82	2032.1	24.04	3.28	6.95	34.28	144.71	8757.5	
9 MEDICAL CARE GIVEN	0.59	0.62	0.95	83.0	0.81	0.30	0.56	1.67	5.91	514.0	
10 CHILD CARE	6.34	21.92	74.05	144.4	10.58	9.58	46.90	67.16	10.26	22828.0	
11 FINANCIAL MANAGEMENT	20.27	31.96	40.36	914.6	28.59	14.21	22.80	65.60	65.13	21361.9	
12 TRAVEL/PRO MEDICAL	0.49	0.50	0.57	31.9	0.70	0.25	0.34	1.29	2.27	375.3	
13 TRAVEL/EDUCATION	0.75	0.40	0.75	16.0	1.02	0.18	0.43	1.63	1.14	476.9	
14 TRAVEL/ORG & RELIGION	3.02	2.38	3.73	84.7	4.08	1.09	2.17	7.33	6.03	2224.2	
15 TRAVEL/SOCAL LIFE	9.05	7.94	9.70	249.2	12.23	3.63	5.63	21.49	17.75	6509.7	
16 TRAVEL/LEISURE	1.51	1.59	1.49	43.1	2.04	0.73	0.87	3.63	3.07	1110.6	
17 SHOPPING/NON-TRADABLE	6.95	8.02	9.23	137.4	9.59	3.94	5.47	19.00	9.78	5761.4	
TOTAL--TRADABLE	541.39	575.21	462.12	6702.9	736.85	271.00	279.41	1287.26	477.31	383563.4	
18 PERSONAL CARE @HOME	55.31	71.77	67.42	79.1	73.33	32.59	38.83	144.75	5.63	45090.3	
19 PERSONAL CARE SERVICES	0.97	1.94	1.95	92.9	1.29	0.88	1.13	3.29	6.61	1108.2	
20 MED CARE RECEIVE @HOME	0.24	0.24	0.49	0.0	0.32	0.11	0.28	0.71	0.00	229.2	
21 PRO MEDICAL CARE	0.97	0.97	1.95	473.3	1.29	0.44	1.13	2.85	33.71	916.8	
22 EATING AT HOME	55.34	46.65	70.05	0.0	77.25	23.36	39.53	140.15	0.00	42025.7	
23 EATING OUT	31.63	23.33	5.92	441.1	43.37	11.68	3.34	58.39	31.41	15870.6	
24 SLEEP AND REST	461.85	470.79	481.47	0.0	636.30	218.92	300.47	1155.69	0.00	342062.4	
25 VACATION	23.77	23.73	23.77	262.7	32.93	11.28	14.46	58.67	18.71	17290.3	
26 EDUCATION	8.74	5.06	5.11	105.5	12.43	2.05	2.82	17.30	7.52	4854.3	
27 RELIGION	7.04	8.90	14.39	156.3	8.04	3.74	8.14	19.92	11.13	7065.5	
28 OTHER ORGANIZATIONS	5.33	3.05	10.43	59.0	5.75	0.80	5.19	11.74	4.13	4521.1	
29 TELEVISION	96.27	61.92	95.13	62.3	117.64	25.76	64.18	207.78	4.44	63031.3	
30 READING	37.79	26.09	36.52	47.7	61.41	14.33	20.01	95.25	3.40	24917.8	
31 SOCIAL LIFE	61.01	65.01	89.69	541.0	81.62	27.76	57.70	167.09	38.52	51332.4	
32 CONVERSATION	12.91	17.62	30.09	178.0	18.34	9.08	18.39	45.81	12.68	14043.5	
33 OUTDOORS	12.45	5.27	4.55	143.8	18.35	3.29	2.53	24.17	10.24	5956.1	
34 ENTERTAINMENT	11.07	10.84	6.29	49.2	16.42	5.72	3.56	25.71	3.50	6555.1	
35 LISTENING TO SOUNDS	5.85	5.25	3.12	59.7	9.36	2.94	1.99	14.29	4.18	1554.8	
36 PERFORMING	0.95	0.49	2.00	18.6	1.43	0.55	1.07	2.75	1.32	827.0	
37 HOBBIES AND CRAFTS	5.24	9.80	17.52	32.9	7.67	5.17	9.36	22.40	2.34	7344.2	
38 PERSONAL LETTERS	2.25	5.88	10.01	9.5	4.29	3.10	5.35	12.74	0.68	4209.9	
TOTAL	1440.00	1440.00	1440.00	9513.6	1956.09	674.78	878.85	3519.73	677.46	1047899.4	

CONTINUATION OF VALUE OF TIME VS. MARKET EXPENDITURES FOR ALL HOUSEHOLDS

	TOTAL EXPENSE BILLION \$	RANK	MARKET EXPENDITURES PER HOUR	RANK	RATIO TIME VALUE/ MARKET EXPENDITURES	RANK
1 JOB	673.0488	2	0.0000	--	----	--
2 TRAVEL TO JOB	114.1355	11	2.1717	14	1.8345	19
3 FOOD PREPARATION	265.6624	3	1.6647	18	1.7413	21
4 HOUSE CLEANING	81.7571	14	0.1476	31	19.3143	4
5 GARDENING	9.2173	31	2.3410	13	1.3578	23
6 PET CARE	8.5521	32	3.3851	6	0.8219	29
7 CLOTHING AND LINENS	123.0557	10	2.6410	11	1.0028	28
8 HOUSE	178.9553	6	16.5050	2	0.2359	33
9 MEDICAL CARE GIVEN	7.5795	33	11.4954	3	0.2828	32
10 CHILD CARE	77.4410	15	0.4504	28	6.5317	8
11 FINANCIAL MANAGEMENT	130.7249	9	3.0498	7	1.0072	27
12 TRAVEL/PRO MEDICAL	3.5617	35	6.0607	4	0.5657	30
13 TRAVEL/EDUCATION	2.7715	37	2.3350	12	1.4367	22
14 TRAVEL/ORG & RELIGION	13.3513	29	2.7105	10	1.2163	24
15 TRAVEL/SOCAL LIFE	39.2392	18	2.7259	9	1.2113	25
16 TRAVEL/LEISURE	6.7021	34	2.7652	8	1.1824	26
17 SHOPPING/NON-TRADABLE	28.7811	23	1.6820	17	1.9420	17
TOTAL--TRADABLE	1764.5752		1.2441		2.6969	
18 PERSONAL CARE PHONE	150.3827	7	0.1222	33	25.7043	3
19 PERSONAL CARE SERVICES	9.9050	30	5.9665	5	0.4980	31
20 MED CARE RECEIVE PHONE	0.7131	38	0.0000	--	----	--
21 PRO MEDICAL CARE	35.5594	19	36.7656	1	0.0945	34
22 EATING AT HOME	140.1457	8	0.0000	--	----	--
23 EATING OUT	89.8035	13	1.9792	15	1.8520	18
24 SLEEP AND REST	1155.6326	1	0.0000	--	----	--
25 VACATION	77.3771	16	1.0821	23	3.1357	12
26 EDUCATION	24.8189	24	1.5431	21	2.3025	15
27 RELIGION	31.0529	21	1.5253	20	1.7893	20
28 OTHER ORGANIZATIONS	15.8854	27	0.9135	24	2.8415	13
29 TELEVISION	212.2163	4	0.0704	34	45.8288	1
30 READING	99.6497	12	0.1354	32	28.3203	2
31 SOCIAL LIFE	205.6097	5	0.7505	26	4.3373	9
32 CONVERSATION	58.4937	17	0.9028	25	3.6128	10
33 OUTDOORS	34.4151	20	1.7137	16	2.3500	14
34 ENTERTAINMENT	29.2116	22	0.5015	27	7.3353	7
35 LISTENING TO SOUNDS	18.4763	26	1.1754	22	3.4181	11
36 PERFORMING	4.0799	35	1.5975	19	2.0892	16
37 HOBBIES AND CRAFTS	24.7332	25	0.3193	29	9.5678	6
38 PERSONAL LETTERS	13.4018	28	0.1614	30	18.7553	5
TOTAL	4197.1875		0.6465		5.1954	

ASSUMPTIONS ABOUT THE ALL HOUSEHOLDS

	WAGE RATE (\$/HOUR AFTER TAX)	POPULATION (MILLIONS)
EMPLOYED MEN	3.80	51.96
EMPLOYED WOMEN	2.09	32.44
HOUSEWIVES	2.85	35.22
TOTAL NUMBER OF HOUSEHOLDS		71.21 MILLION